INDUSTRIAL MEDICINE

Industrial Health, Occupational Medicine and Traumatic Surgery

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September, 1946

Occupational Medicine
— Retrospect and Prospect —

The Industrial Environment
— In Terms of the Human Response —

Perforating Ocular Injuries
— Case Reports —

The Utilization of Aluminum
— In the Prevention and Treatment of Silicosis —

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— The Attitude of Management —
— Standards for Analyzing Accidents —
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Volume 15 Number 9

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1. Solis-Cohen, S. and Githens, T. S.: Pharmacotherapeutics, ed. 1, New York, D. Appleton and Company, 1928, p 1375.
2. Tuft, L. and Levin, N. M.: Studies of the Expectorant Action of the Iodides, Am. J. M. Sc. **203**:717 (May) 1942.

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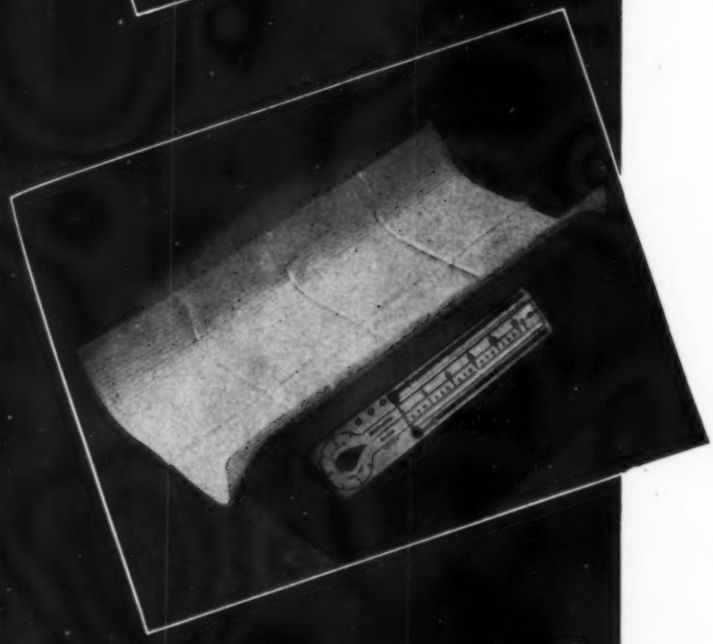

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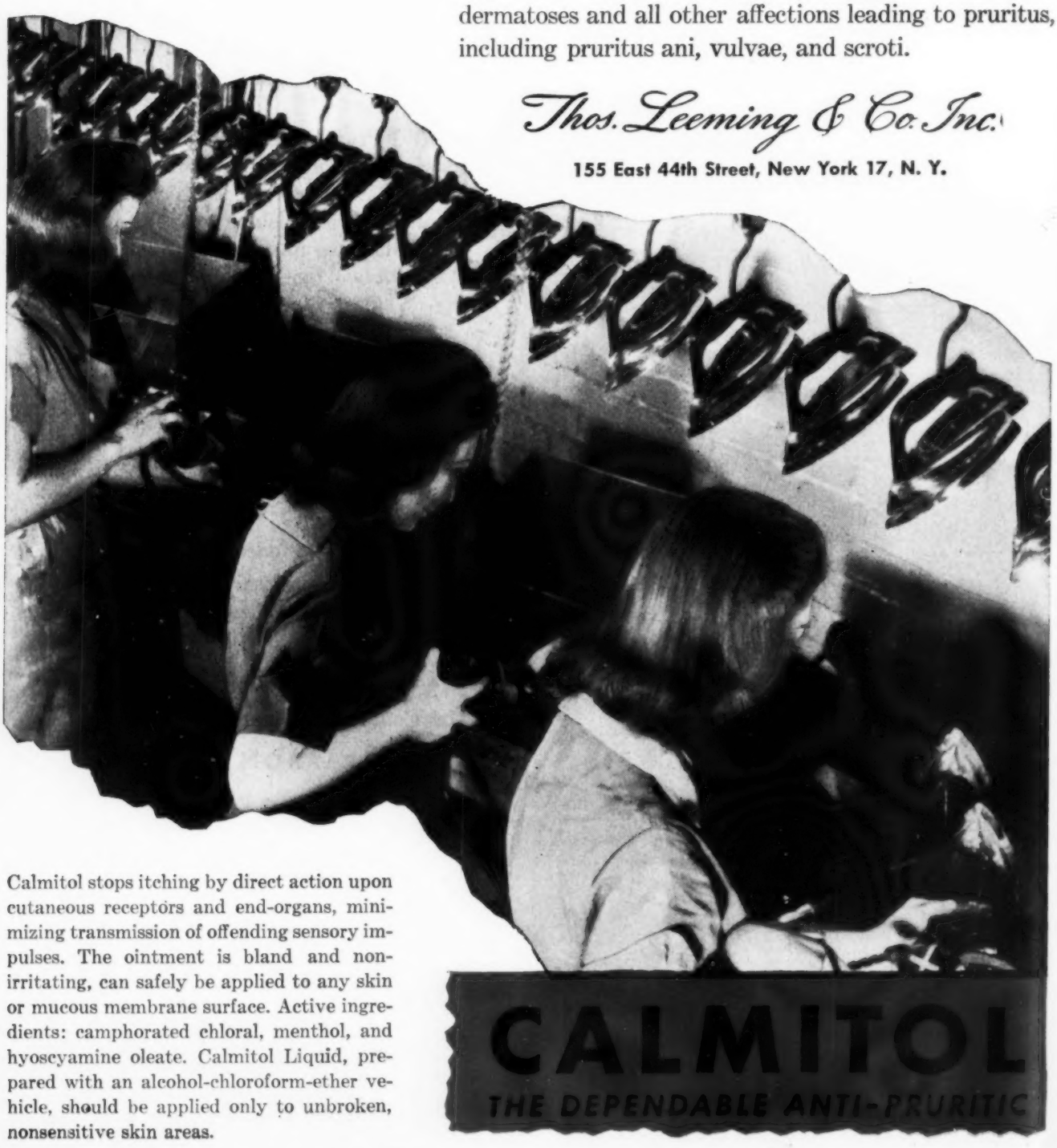

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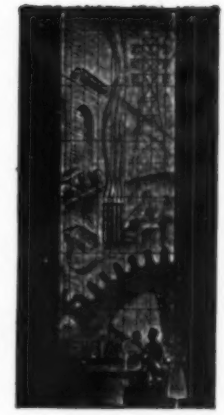

INDUSTRIAL HYGIENE
INDUSTRIAL MEDICINE
& RAILROAD SURGERY

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Congress on Industrial Health

The Seventh Annual Congress on Industrial Health, under the sponsorship of the A. M. A. Council on Industrial Health, will be held at the Copley-Plaza Hotel, Boston, Massachusetts, September 30 through October 3, 1946.

American Association of Railway Surgeons

The 57th Annual Meeting of the American Association of Railway Surgeons will be held at the Hotel Sherman, Chicago, October 29-30-31, 1946.

TOO LATE for the News Section comes the news that DR. A. G. KAMMER has been appointed Medical Director of Schenley Distilleries, Inc., effective October 1. DR. KAMMER was Medical Director of Inland Steel, and, during the war years, Medical Director of the Carbide & Carbon Division at Oak Ridge, Tennessee. He is a Fellow of A.A.I.P. & S., and has published several important papers on industrial medical subjects, notably in *J.A.M.A.* . . . ALSO too late for more than the factual mention here comes word of the death of DR. FRANK T. MCCORMICK, 66, of Detroit, in July, and of DR. RICHARD E. NEWBERRY, 50, of Atlanta, on August 12. Both of these men were long identified with industrial medicine and surgery; both were Directors of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS and SURGEONS, 1941-1943. . . . THE announcement (page 14) of the establishment of the AMERICAN ACADEMY OF OCCUPATIONAL MEDICINE will be read with great interest. The scope of the ACADEMY'S plans, as outlined, gives promise of industrial medical leadership in respect of many of the things which industrial executives are criticized for not understanding, but which, too often, they have been unable to find out about—in other words, a *scientific* medical-managerial liaison. . . . BERT HANMAN, off for an extended trip in Europe (page 14) promises the readers of INDUSTRIAL MEDICINE a serial account of his travels and experiences. His first stop will be in England where DR. RICHARD SCHILLING has planned for him an intensive three weeks in the study of worker placement. Meanwhile he leaves us the very informative "Symposium" on pages 515-527. . . . DR. PILGRIM this month (page 532) arouses to envy with his exceedingly interesting Odyssey of a vacation. . . .

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Industrial Medicine

American Association of Industrial Physicians and Surgeons

THE object of this Association shall be to foster the study and discussion of the problems peculiar to the practice of industrial medicine and surgery; to develop methods adapted to the conservation of health among workers in the industries; to promote a more general understanding of the purposes and results of the medical care of employees, and to unite into one organization members of the medical profession specializing in industrial medicine and surgery for their mutual advancement in the practice of their profession.

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PERSONAL

DR. SHERMAN S. PINTO has been appointed Medical Director of the Tacoma Smelter of the American Smelting and Refining Company. He was formerly in charge of the medical work of the Industrial Hygiene Division in Massachusetts, and later headed the Division in Louisiana, following which he served in the Medical Corps of the Army in the European Theater of Operations.

DR. C. RICHARD WALMER has been appointed Medical Director of Industrial Hygiene Foundation. He will hold the rank of Senior Fellow in Mellon Institute. As a full-time physician for Industrial Hygiene Foundation, he will direct the medical phase of the Foundation's work for the improvement of working conditions and the advancement of employee health in industry. He will also serve as Secretary of the Foundation's Medical Committee which is headed by DR. A. J. LANZA, Associate Medical Director, Metropolitan Life Insurance Company, New York. For the past five years DR. WALMER has been associated with DR. T. LYLE HAZLETT, Medical Director at Westinghouse Electric Corporation, serving as toxicologist and as a consulting specialist in industrial medicine. He has had wide experience with sick disability cases and in protecting workers against health hazards. He is a staff member of Presbyterian and Braddock General Hospitals, Pittsburgh. Upon graduation from Washington & Jefferson College, DR. WALMER entered the University of Pittsburgh Medical School where he obtained his M.D. degree in 1938. After interning at Pittsburgh Hospital, he took one year of post-graduate work in medicine at University of Pennsylvania. Besides his medical training, DR. WALMER also holds the Master of Science degree in chemistry.

ALLEN D. BRANDT, SC. D., has been appointed to the staff of Bethlehem Steel Company's industrial hygiene department. DR. BRANDT comes to the Bethlehem organization from the U. S. Public Health Service, in which he held the commission of Lieutenant Colonel. After graduation from Pennsylvania State College in civil engineering, he took graduate work at Harvard University in industrial hygiene where he received his master and doctorate degrees in sanitary engineering. He was seven years director of the industrial hygiene research laboratory

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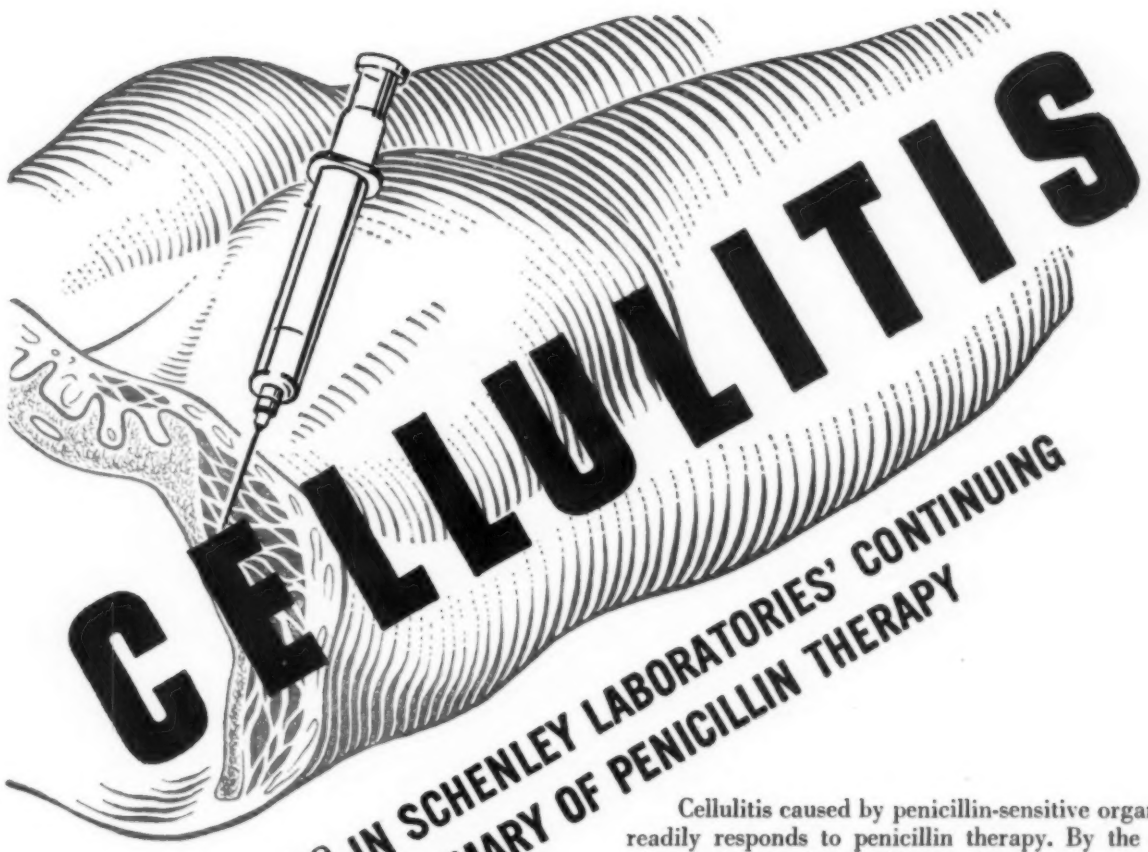

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WOLLGAST, C. E.: *The Clinical Use of Penicillin: A Report of 115 Cases Treated in an Army Hospital, Texas State J. M. 40:225 (Aug.) 1944.* **FARQUHARSON, R. F.; GREEY, P., & TOWNSEND, S. R.:** *Results of Penicillin Therapy: A Report for the Joint Services Penicillin Committee, Canad. M. A. J. 53:1 (July) 1945.*

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for Willson Products, Inc., Reading, Pennsylvania, and six years in the U. S. Public Health Service. Shortly after joining the latter he was assigned to Washington, D. C., as chief of the Engineering Unit of the Industrial Hygiene Division. In 1942 he was sent to the Safety and Security Division, office of Chief of Ordnance, U. S. Army, Chicago. When the war ended he was assigned to the research laboratory of the American Society of Heating and Ventilating Engineers in Cleveland, Ohio, to conduct research into industrial ventilation and air conditioning as it relates to industrial atmospheric sanitation, and it is from this post that he comes to Bethlehem Steel Company.

DR. H. B. VAN DER MERWE, of South Africa, consulted with the Bethesda staff on matters of importance to him as the medical director of a large steel plant now in the process of construction in South Africa. On a 20,000-acre tract of ground a town is being built to accommodate a population of approximately 15,000 people who will be connected with the steel plant. DR. VAN DER MERWE was interested in observing the policies and practices of similar projects in this country.

—*Industrial Hygiene Newsletter*, 6:7, 5, July, 1946.

THE following officers of the AMA Section on Preventive and Industrial Medicine and Public Health were elected at the Section meeting on Thursday, July 4, at San Francisco: chairman, CLARENCE O. SAPPINGTON, Chicago; vice-chairman, R. H. RILEY, Baltimore; secretary, RUTHERFORD T. JOHNSTONE, Los Angeles; executive committee: JOSEPH W. MOUNTIN, U.S.P.H.S.; E. L. STEBBINS, New York; CLARENCE O. SAPPINGTON, Chicago; delegate, STANLEY H. OSBORN, Hartford, Connecticut; alternate, LEVERETT D. BRISTOL, Augusta, Maine; representative to Scientific Exhibit, PAUL A. DAVIS, Akron, Ohio.

New Florida Association

THE FLORIDA ASSOCIATION OF INDUSTRIAL SURGEONS and the FLORIDA ASSOCIATION OF RAILWAY SURGEONS have voted to combine their memberships into a single organization and adopted the new name of FLORIDA ASSOCIATION OF INDUSTRIAL AND RAILWAY SURGEONS. The action was taken at a special meeting held in connection with the 72nd annual session of the Florida Medical Association at the George Washington Hotel. DR. FRANK D. GRAY, of Orlando, president of the railway surgeons, notified the industrial group that his organization desired to effect the combination and approval of the step was gained by unanimous vote. DR. F. A. VOGT, of Miami, was elected president of the association, and DR. LLOYD J. NETTO, of West Palm Beach, was named president-elect. Other officers are DR. E. W. CULLIPHER, Miami,

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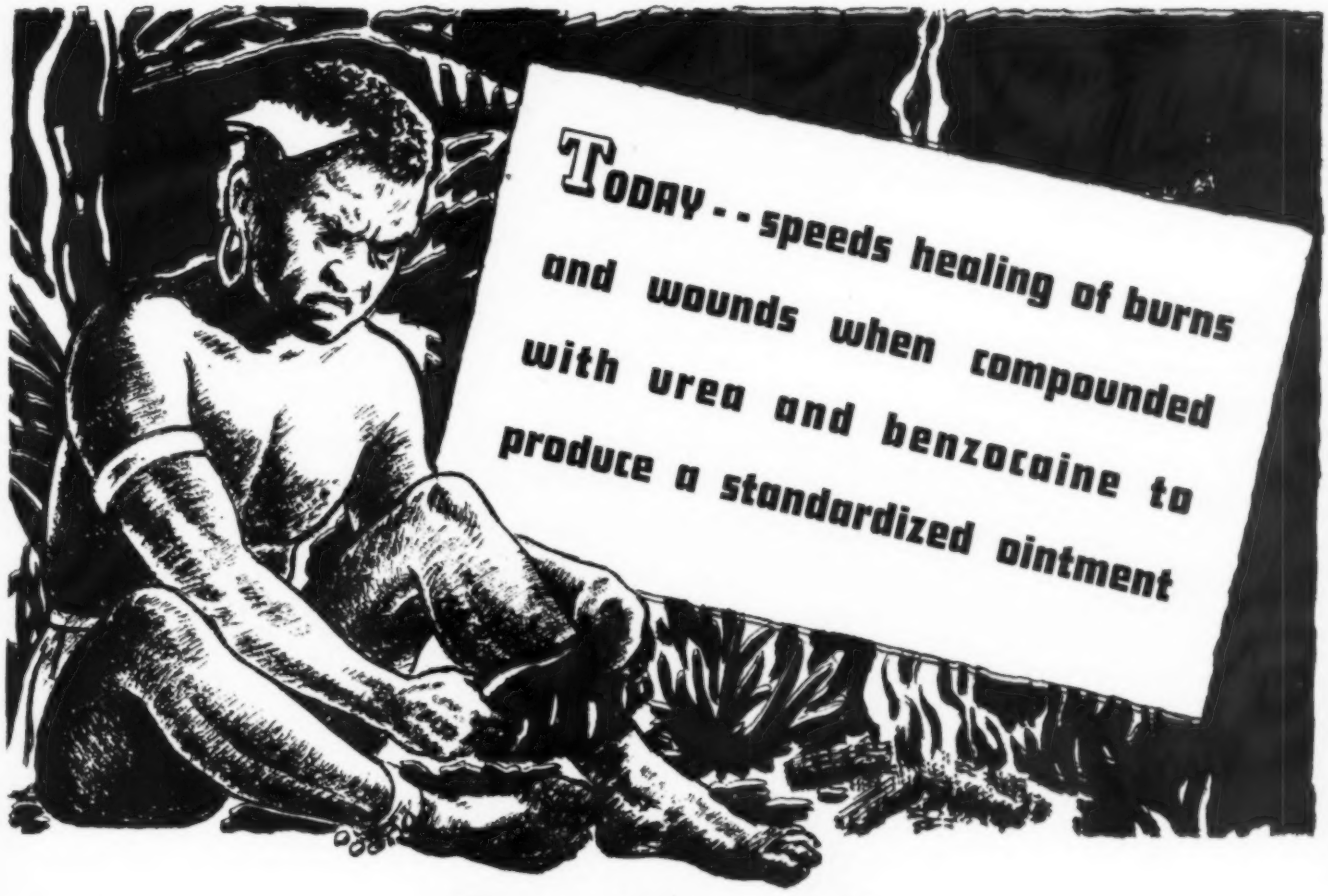

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vice-president; DR. J. H. MITCHELL, Jacksonville, secretary-treasurer. Directors are DR. A. M. BIDWELL, Tampa; DR. W. H. CHAPMAN, Jacksonville; DR. F. L. FORT, Jacksonville and DR. FRANK D. GRAY, Orlando. DR. KENNETH A. MORRIS, of Jacksonville, is retiring president of the industrial surgeons and DR. GRAY is retiring president of the railway group. Following DR. MORRIS' address yesterday, the industrial surgeons heard a talk by R. P. LAWSON, deputy commissioner of the USES, on "Medical Fees Under the Longshoremen's and Harbor Workers' Compensation Act." RAYMOND E. BARNES, legal adviser for the Workmen's Compensation Division of the Florida Industrial Commission, discussed "Revision Fee Schedule." A round table dis-

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cussion followed. C. L. DAUGHTRY, attorney for the Southern Department of the Hartford Accident and Indemnity Company, was scheduled to address the meeting but was unable to be present. The railway surgeons association held a separate meeting at the Seminole Hotel prior to the session of the industrial surgeons. —*Florida Times-Union*, Jacksonville.

Academy of Occupational Medicine

ON JUNE 26 at a meeting in the Hotel New Yorker, New York, the AMERICAN ACADEMY OF OCCUPATIONAL MEDICINE was organized to improve the health of industrial workers, with improvement in occupational efficiency as a corollary. Cooperating with acceptable agencies that may further either directly or indirectly the physiologic well being of the employed population, the foundation will foster the prevention, diagnosis, treatment and general care of occupational illnesses or injuries and institute research to encourage a better understanding of the pathogenesis of industrial diseases and improvement in methods of prevention and care. The results of these activities will be made available to interested groups. Officers of the new academy include DRS. GEORGE H. GEHRMANN, Du Pont Company, Wilmington, Delaware, president; DONALD O. HAMBLIN, American Cyanamid Company, New York, vice-president; JAMES M. CARLISLE, Merck & Company, Inc., Rahway, New Jersey, secretary, and MELVILLE H. MANSON, American Telephone & Telegraph Company, New York, treaurer. Membership in the new academy will be of four types: active and honorary members, fellows and fellows emeritus. An applicant for membership, except honorary, must have a license to practice medicine, membership in the American Medical Association or in some other group recognized by the Council on Medical Education and Hospitals of the American Medical Association, and must indicate his chief interest to be demonstrably in the field of occupational medicine. Special prerequisites have been set up to qualify applicants for membership, including written and oral examinations. In addition to the officers elected at the recent meeting the following are charter members: DR. ARTHUR G. CRANCH, Union Carbide & Carbon Company, New York; DR. E. E. EVANS, Dye Works Hospital, Deepwater, New Jersey; DR. JOHN H. FOULGER, Haskell Laboratory, Du Pont Company, Wilmington; DR. LEROY U. GARDNER, Saranac Laboratory for the Study of Tuberculosis, Saranac Lake, New York; DR. AUGUSTUS GIBSON, Merck & Company, Inc., Rahway, New Jersey; DR. LEONARD GOLDWATER, Department of Occupational Medicine, Columbia University College of Physicians and Surgeons, New York; DR. LEONARD GREENBURG, New York State Department of Labor, New York; DR. FRANK M. JONES, Canadian Industries, Ltd., Montreal, Canada; DR. ROBERT A. KEHOE, University of Cincinnati College of Medicine, Cincinnati; DR. A. F. MANGELSDORFF, Calco Chemical Division, Bound Brook, New Jersey; DR. CAREY P. MCCORD, 10 Peterboro Street, Detroit; DR. W. D. NORWOOD, P. O. Box 100, Richland, Washington, c/o General Electric Company; DR. CARL PETERSON, Secretary, Council on Industrial Health, American Medical Association, Chicago. DR. JOHN J. PRENDERGAST, Chrysler Corporation, Detroit; DR. WILLIAM A. SAWYER, Eastman Kodak Company, Rochester 4, New York; DR. LOUIS SCHWARTZ, U. S. Public Health Service, Bethesda, Maryland; DR. JAMES H. STERNER, Clinton Engineer Works, Tennessee Eastman Corporation, Knoxville 5, Tennessee; DR. JAMES J. WARING, 227 16th Street, Denver. —*J.A.M.A.*, August 10, 1946.

We have obtained from War Assets Corporation a large quantity of the excellently made instruments illustrated which we can offer at the following very favorable prices.

3B122G — Kirschner Hand Drill (A), chrome plated body with stainless steel chuck, complete with 3 twist drills, sizes 1/16-, 3/32-, and 1/8-inch, standard price $29.50, special, only..... **$10.00**

3B123G — Bohler-Steinman Pin Set, consisting of chrome plated Adjustable Chuck Handle (B), one each stainless steel Bohler-Steinman Pin Holders (B and C), medium adult and child sizes, standard price $14.50, special, only..... **$5.85**

3B124G — Special Bone Set, consisting of one each of the above listed instruments, standard price $44.00, special, only..... **$12.50**

aloe A. S. ALOE COMPANY—*1831 Olive St.*—*St. Louis 3, Mo.*

BERT HANMAN, selective placement expert and author of "Matching the Physical Characteristics of Workers and Jobs (INDUSTRIAL MEDICINE, 14:5, pp. 405-430, May, 1945), recently received a handsome award from the Rheem Manufacturing Company for travel and research in the safe and successful placement of physically handicapped workers in industry. In addition to America and Canada, he will visit England, Norway, Sweden, Denmark, Holland, Belgium, France, Italy and Switzerland. The Rheem Manufacturing Company is sponsoring this work in that it may result in a book for the general good of industry, government and labor.

WITH **BAUSCH & LOMB QUALITY**

Safety Eyewear

If you want increased production, improved quality, reduced labor turnover, fewer accidents, lower training costs, write for this booklet, which describes the Bausch & Lomb Industrial Vision Service.

"Bausch & Lomb Quality" has stood through four generations as the symbol of utmost in precision and performance in optical products. Today, in safety eyewear it means skilled design and competent manufacture of equipment for eye protection against flying particles, glare and excess light, dust, or fumes. It means, too, lenses for *correction* as well as protection, individually and professionally prescribed to the visual requirements of every job—for the comfort and increased productivity of every worker. Bausch & Lomb Optical Co., 602-9 St. Paul St., Rochester 2, N. Y.

BAUSCH & LOMB

ESTABLISHED 1853

Safe from the sleep-robber . . . *feather dust*

A major cause of irritation, for persons sensitive to feather dust, is avoided by the use of pillows filled with Fiberglas* Superfine Fibers. And similar relief is being obtained by persons sensitive to products of the disintegration or deterioration of other organic materials used to fill pillows.

"Household dust is one of the two allergens that account for the majority of the estimated 5,000,000 persons in the United States who are victims of asthma and other respiratory disturbances, resulting from exposure to allergenic substances.

"Principal source of the household dust that causes asthmatic symptoms is bedding dust that results from disintegration of cotton linters . . . the actual allergen is believed to be a protein substance in the minute air-borne particles that result from such disintegration. Moreover, as feathers in pillows are cleaned or renewed, they become brittle; particles break off, get into the air, and are breathed, thus creating respiratory distress in those who are allergic to them."†

The Fiberglas Superfine Fibers used in the pillows are microscopically fine fibers of glass, fabricated into resilient batts. The fibers are light, strong, pliable, moisture-resistant. And, being glass, the fibers are inorganic and, therefore, contain no allergenic protein. They are absolutely safe, from the allergist's viewpoint.

That repeated use will not cause the superfine fibers to penetrate the pillow ticking has been established by an independent testing laboratory.§ Furthermore, additional tests show that, even if particles of the fibers should become crushed and penetrate the ticking, the possibility is very remote that any contact dermatitis of the face and neck could be caused by sleeping on Fiberglas-filled pillows.

Owens-Corning Fiberglas Corporation produces the fibers of glass, does not manufacture pillows. We will be glad to refer your request for complete information about Fiberglas-filled pillows to pillow manufacturers. Or data on the subject of Fiberglas materials and their medical aspects, will be sent on request. Owens-Corning Fiberglas Corporation, Department 2029, Toledo 1, Ohio. Branches in principal cities.

In Canada, Fiberglas Canada Ltd., Toronto, Ontario

*T. M. Reg. U. S. Pat. Off.

†Quoted from a report by Karl Figley, M. D., Secretary of the American Academy of Allergy.

§Details of the tests will be furnished on request.

OWENS-CORNING

FIBERGLAS

TM REG US PAT OFF

PUT THE SPOTLIGHT ON— CARBON MONOXIDE

M·S·A CARBON MONOXIDE ★ ALARM

You can make Carbon Monoxide *visible* and *audible* with this exclusive development of the M.S.A. Research Laboratories. The instrument, stationed at point of hazard, continuously samples the surrounding air, and whenever carbon monoxide in air reaches a pre-determined amount, the Alarm gives a prompt, loud warning and visible indication. The Alarm may be set to operate at a pre-determined setting from 0 to .04%, and may be employed to operate ventilation or process controls. Designed for twenty-four hour service, the unit is completely enclosed in a weatherproof case and is operated from the lighting circuit. Write for Bulletin No. DR-2.

M·S·A CARBON MONOXIDE ★ INDICATOR

Wherever carbon monoxide hazards exist, accurate determination of the concentrations in air may be obtained with this direct-reading, compact, portable instrument. The Indicator's range is from 0 to .15% carbon monoxide; the dial can be read directly to .005% and estimated to .001% (equivalent to ten parts per million). Three types available—one with self-contained batteries (illustrated), another for use with outside source of current, and the third a hand-operated model which does not require connections to a storage battery or lighting circuit. The instrument is ideally adapted to surveys of industrial atmospheres, interiors of motor vehicles, chemical processes, furnace operations, and many similar applications. Bulletin No. DS-3.

MINE SAFETY APPLIANCES COMPANY
BRADDOCK, THOMAS AND MEADE STREETS · PITTSBURGH 8, PA.
DISTRICT REPRESENTATIVES IN PRINCIPAL CITIES
IN CANADA
MINE SAFETY APPLIANCES COMPANY OF CANADA, LIMITED
TORONTO . . . MONTREAL . . . CALGARY . . . VANCOUVER . . . NEW GLASGOW, N. S.

To the Profession:

Announcing a Significant Diagnostic Achievement—

The Berman Metal Locator

A sensitive guide to the surgeon for locating metallic foreign bodies in the tissues.

Designed primarily to facilitate the work of the surgeon, the Berman Metal Locator is a highly sensitive instrument capable of indicating by visual and audible indicators the location and direction of metallic substances in the tissues. Successful operations involving the removal of foreign bodies from the heart, eye, lung, brain, spine and extremities have been consummated more quickly with the reliable diagnostic aid provided by the Berman Metal Locator. The outstanding advantages of the Locator are its accuracy, its faculty for saving precious minutes during delicate operations and the minimization of trauma. The industrial surgeon, ophthalmologist and the general surgeon will find the Locator an indispensable aid that will greatly facilitate their work preliminary to, and during surgery.

For complete information mail this coupon to General Electric X-Ray Corporation, 175 West Jackson Boulevard, Chicago 4, Ill., Dept. 2589

Dr._____

Address_____

City_____ State_____

GENERAL ELECTRIC X-RAY CORPORATION

when you recommend or require an antiseptic...
'S. T. 37' Antiseptic Solution provides you with the *safest* and most *effective* antiseptic for clinical use! • This *nontoxic* germicide has demonstrated repeatedly its efficiency in the treatment of lacerations, abrasions, burns and scalds. Moreover, it is *nonirritating* and is safe to use on open wounds. • Combining a *surface analgesic effect* with a *high germicidal action*, 'S. T. 37' Antiseptic Solution is ideal for use as a spray or gargle on germ-bearing surfaces of delicate mucous membranes of the upper respiratory tract. • *Stable, odorless* and *stainless*, 'S. T. 37' Antiseptic Solution is a "must" for the industrial physician. Supplied in bottles of 5 and 12 fluidounces. Sharp & Dohme, Philadelphia 1, Pa.
'S. T. 37'
ANTISEPTIC SOLUTION
SHARP & DOHME

ATTENTION!
IF You Have Dry Skin
IF You Are Exposed to Solvents...
USE SULPHO AT WASHUP TIME!
SOME PLANTS NEED MANY...
ALL PLANTS SHOULD HAVE
ONE SULPHO DISPENSER

SULPHO..

Hand Cleaner - Will Not Defat the Skin

In many occupations, chemicals are encountered which tend to remove the normal fat of healthy skin and make it more susceptible to dermatitis. Some workers have naturally dry skin which cannot stand frequent washing with even the mildest soaps. For those who have naturally dry skin and for those who must in the course of their work dip their hands in solvents, degreasing compounds and similar materials, West offers this new special type of hand cleaner. Due to the nature of the product, it has an almost neutral pH. It is specially designed not to defat the skin. Sulpho is manufactured from the highest quality sulfonated castor and vegetable oils but its cost compares favorably with other products of lesser efficiency.

Many plants using Sulpho Hand Cleaner extensively, find that some workers require an abrasive type of cleaner also. Lan-O-Kleen, the powdered soap compounded with granular corn-meal which has been impregnated with Lanolin, has an amazingly successful history.

West recommends that both Sulpho and Lan-O-Kleen be made available to give all your workers adequate protection.

WEST DISINFECTING *Company*

42-16 WEST STREET • LONG ISLAND CITY • N. Y.

CLIP TO YOUR BUSINESS LETTERHEAD, PLEASE

West Disinfecting Co., Dept. IM
42-16 West St., L. I. City 1, N. Y.

Please send us your booklet "Production Safeguards Against Dermatitis" describing Sulpho, Lan-O-Kleen and other important aids in dermatitis prevention programs.

*Name*_____ *Title*_____

Sulfonamets "NATIONAL"

BATTLE OF THE BULGE

(GERM'S EYE VIEW)

For effective treatment of the inflamed and swollen oropharyngeal tissues in patients with "sore throat", Sulfonamets "National" are ideal. They provide a high concentration of sulfathiazole at the site of infection for a prolonged period of time, and produce a soothing and healing effect welcomed by the patient.

Sulfonamets are pleasant to the taste; patients willingly allow them to dissolve slowly in the mouth. Indicated in the treatment of mouth and throat infections susceptible to sulfathiazole, Sulfonamets are also ideally adapted for use as a prophylactic, and in pre- and post-tonsillectomy conditions, as well. For professional literature, write to **The National Drug Company, Philadelphia 44, Pennsylvania.**

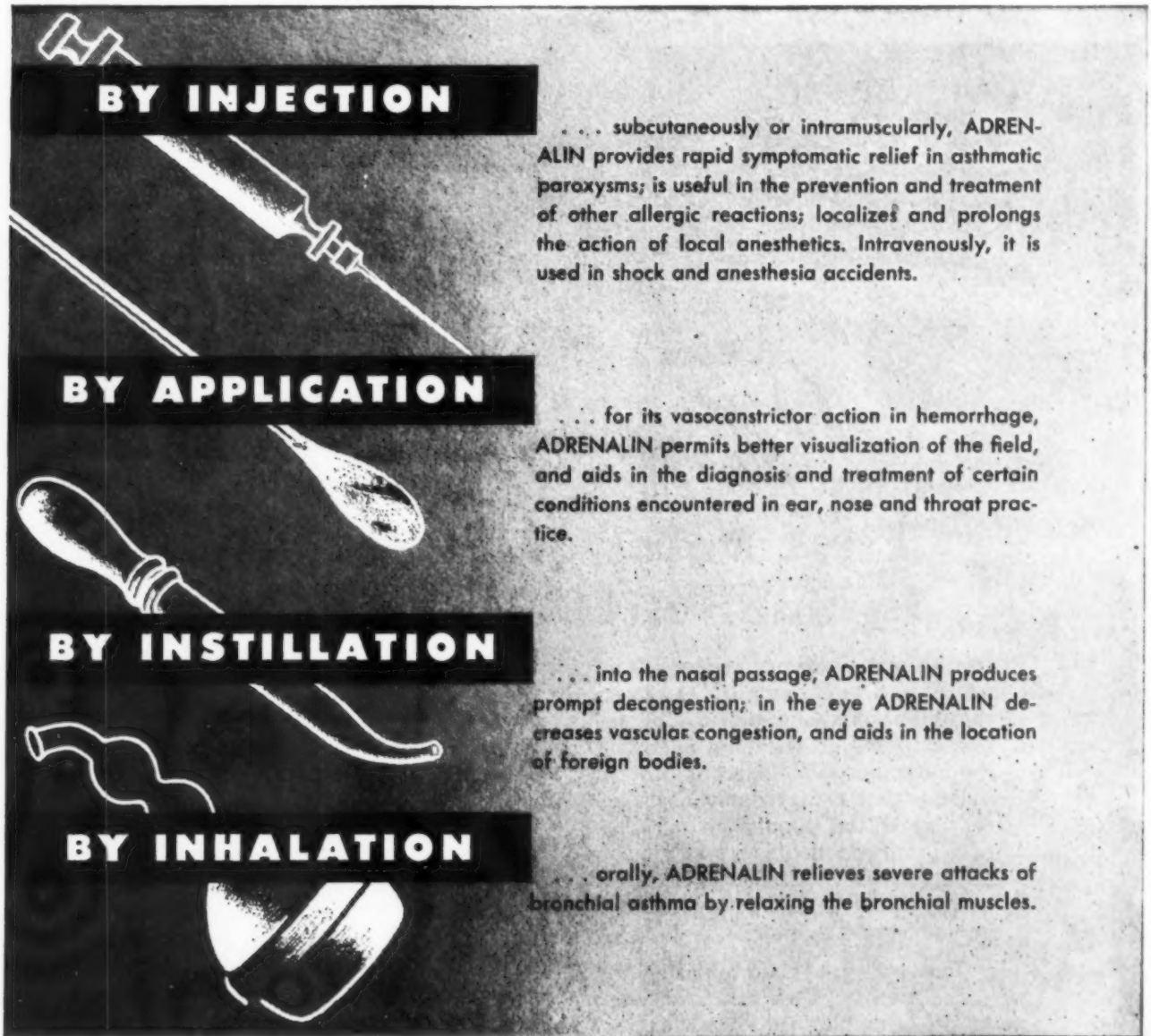
THE NATIONAL DRUG COMPANY, PHILADELPHIA 44, PA.

Each Sulfonamet contains sulfathiazole 2½ gr., allantoin ⅛ gr. and benzocaine 1/20 gr., with aromatics and sweetening agents.

Available in bottles of 100, 500 and 1,000 lozenges.

The NATIONAL DRUG COMPANY

PHARMACEUTICALS. BIOLOGICALS. BIOCHEMICALS FOR THE MEDICAL PROFESSION



BY INJECTION

. . . subcutaneously or intramuscularly, ADRENALIN provides rapid symptomatic relief in asthmatic paroxysms; is useful in the prevention and treatment of other allergic reactions; localizes and prolongs the action of local anesthetics. Intravenously, it is used in shock and anesthesia accidents.

BY APPLICATION

. . . for its vasoconstrictor action in hemorrhage, ADRENALIN permits better visualization of the field, and aids in the diagnosis and treatment of certain conditions encountered in ear, nose and throat practice.

BY INSTILLATION

. . . into the nasal passage, ADRENALIN produces prompt decongestion; in the eye ADRENALIN decreases vascular congestion, and aids in the location of foreign bodies.

BY INHALATION

. . . orally, ADRENALIN relieves severe attacks of bronchial asthma by relaxing the bronchial muscles.

Its remarkable ability to stimulate the heart and increase cardiac output, raise the blood pressure, constrict the peripheral arterioles, dilate blood vessels of voluntary muscles, and relax bronchial muscles . . . makes ADRENALIN one of the most *versatile* and *useful* therapeutic agents at the command of the physician. Little wonder, then, that it's always kept close at hand in operating room, office, and medical bag.

To permit full use of its many therapeutic applications, there is a form of ADRENALIN (Epinephrine) to meet every medical need: Solutions of 1:100, 1:1000, 1:2500, 1:10,000; Suspension of 1:500 in oil and Inhalant, Suppository, and Ointment.

ORIGINAL ADRENALIN

PARKE, DAVIS & COMPANY

DETROIT 32 • MICHIGAN

First Point of Leverage in Subnutritional States

Of the many dietary indiscretions which lead to subnutritional states, the all too common practice of breakfast skipping or skimping is among the most prevalent. Recent surveys indicate that a surprisingly large percentage of the population partakes of a totally inadequate breakfast in the erroneous belief that this meal is unimportant or that little harm can accrue from the practice.

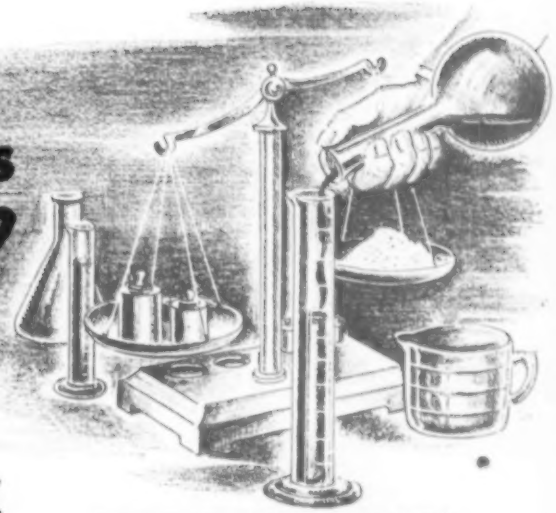
That a state of good nutrition and consequently peak efficiency can hardly be maintained if the breakfast is not adequate is universally acknowledged. Hence the widely recommended basic breakfast pattern which assures a good nutritional and metabolic start for the day, and makes unnecessary overburdening the other two meals in order to satisfy the daily nutrient needs. This breakfast provides fruit, cereal with milk, bread or toast, butter, and beverage. The inclusion of the cereal serving adds measurably to the nutrient values of this meal, providing biologically adequate protein, readily available caloric food energy, as well as B complex vitamins and essential minerals. The table of composite averages outlines the quantitative contribution made by a dish of 1 ounce of cereal (whole grain, enriched, or restored to whole grain values of thiamine, niacin, and iron), 4 ounces of milk, and 1 teaspoonful of sugar:

Calories	**202**
Protein	**7.1 Gm.**
Fat	**5.0 Gm.**
Carbohydrate	**33 Gm.**
Calcium	**156 mg.**
Phosphorus	**206 mg.**
Iron	**1.6 mg.**
Thiamine	**0.17 mg.**
Riboflavin	**0.24 mg.**
Niacin	**1.4 mg.**

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

CEREAL INSTITUTE, INC.
135 SOUTH LA SALLE STREET • CHICAGO 3

WE LIKE TO CHANGE STANDARDS *UPWARD*



STANDARDS are most often developed in two ways: by governmental agencies or ethical professional bodies so that certain desirable results and functions may be maintained, or by a new type product whose function and content are so different that it immediately becomes a "standard" until a better product competitively enters the market and establishes a newer and higher "standard."

When Paxlanosav Heavy Duty was developed more than twenty years ago, a newer, higher standard was immediately established. Since then, each succeeding improved standard for granulated skin cleaners has been excelled only by Paxlanosav Heavy Duty itself. Today the only satisfactory purchasing procedure for powdered or granulated skin cleansers is comparison by actual test — both qualitatively and on the basis of cost per wash per worker.

First adding lanolin, and then adding a blended emollient (Paxlanosav) containing lanolin and several other emollient oils, brought Paxlanosav Heavy Duty far above its own previous high standard. The development and incorporation of a specially processed sterilized vegetable scrubber by Pax raised standards again; so did reducing the pH below a safety ceiling of 10. Proper buffering and neutralizing of chemicals to guard against defatting and drying of the skin, providing unusual lathering and sudsing ability, increasing bulk for greater economy, and numerous other improvements by Pax continually keep setting ever newer and higher standards.

PAXLANOSAV* GRANULATED HEAVY DUTY SKIN CLEANSER

ADVERTISED IN AMERICAN MEDICAL ASSOCIATION PUBLICATIONS

PAXLANOSAV*

... a plus blend of emollients containing lanolin

FOR ALL GENERAL SKIN CLEANSING NEEDS

The probability is that you are now using Pax in your own plant. However, if you are not, then we suggest that you ask us for test samples.

*TRADENAME OF G. H. PACKWOOD MFG. CO.

PAX

TRADEMARK REG. U. S. PAT. OFF.

When you purchase any Pax Product you also purchase the experience and ability of Pax Technicians acquired through 20 years of exhaustive research and development.

G. H. PACKWOOD MFG. CO.

Manufacturers of Fine Industrial Skin Cleansers

1545-55 TOWER GROVE AVE. • ST. LOUIS 10, MO.

Nearly 20 years ago Pax pioneered by providing in Heavy Duty an ample measure of both thorough cleansing and proper super-fatting with soothing emollient oils. Although others now produce powdered industrial hand soaps, containing emollients, a generation of research, development and experience still enables Pax to lead in offering unsurpassed quality in granulated safety skin cleansers.

For Unusual and Special Skin Cleansing Tasks

PAX SULPHONATED OIL SKIN CLEANSER

Contains Lanolin

ADVERTISED IN AMERICAN MEDICAL ASSOCIATION PUBLICATIONS

In occupations in which workers' hands come in contact with severe skin-defatting solvents, degreasing compounds, highly alkaline or other skin-irritating chemicals, Pax Sulphonated Oil Skin Cleanser can be used to supplement General Purpose Pax Heavy Duty Granulated Skin Cleanser. Of highest dermatological quality, non-alkaline, mildy acid, bland, soothing, non-sudsing, Pax Sulphonated Oil Skin Cleanser offers worker protection unexcelled by any other product of its type.

To many physicians, Burdick Equipment is the standard of comparison. It is designed and built to deliver a generous-plus of performance, and to incorporate those features which afford the maximum of time-saving convenience in use and clinical efficacy.

The Z-12 Zoalite meets the needs of average practice. Equipment: 600-watt Burdick patented single-bar, non-metallic generator; 12 inch ventilated reflector, aluminum faced. Stand is adjustable 36 to 72 inches. Mobile. Simple to operate. For A.C. or D.C. operation.

AMERICAN MEDICAL ASSN. ACCEPTED COUNCIL ON PHYSICAL MEDICINE

Healing Heat WITHOUT CONTACT

THE *Burdick* Z-12 ZOALITE

In menstrual disturbances, strains, sprains, contusions, muscle and joint soreness and stiffness.

A Burdick Zoalite in the plant hospital, first-aid or treatment room can save many hours of productive time.

- returns the worker to the job sooner.
- helps prevent absenteeism.

Conditions in which patient-contact with the heat source must be avoided—infected wounds, painful sensitivity and tenderness—are but one instance of the versatility and unique usefulness of Infra-Red radiation. Beneficial in an ever-widening field of clinical applications, the Infra-Red generator is becoming indispensable office equipment in every branch of medical practice.

INFRA-RED RADIATION

- induces local hyperemia — favors increased vascular circulation and leucocytosis
- increases temperature locally without significant systemic hyperpyrexia
- aids in relieving pain, spasm, stiffness, tension

The BURDICK CORPORATION
MILTON, WISCONSIN

A NEW, YET **PROVEN** WEAPON FOR THE CONTROL OF **allergies**

HAY FEVER

URTICARIA

ASTHMA

Ciba announces Pyribenzamine, a synthetic chemical with marked capacity to antagonize the actions of histamine. Thus it is useful in the prevention and relief of anaphylaxis and many forms of allergy.

Laboratory work of several years, followed by extensive clinical evidence has led to the release of Pyribenzamine with assurance of its efficacy in a majority of cases.

In its three primary indications—**Hay Fever, seasonal Asthma** and **Urticaria**—Pyribenzamine affords marked symptomatic relief.

At present available in limited quantities, Pyribenzamine is issued in tablets of 50 mg., in bottles of 50 and 500.

Literature on Pyribenzamine may be obtained by writing the Professional Service Department.

Pyribenzamine
—Trade Mark Applied For

PYRIBENZAMINE

CIBA

CIBA PHARMACEUTICAL PRODUCTS, INC. • SUMMIT, NEW JERSEY

The doctor makes his rounds

● Wherever he goes, he is welcome . . . his life is dedicated to serving others.

Not all his calls are associated with illness. He is often friend and counselor . . . he is present when life begins, watches it flourish and develop. His satisfactions in life are reflected in the smiling faces of youngsters like this one above, and of countless others whom he has long attended.

Yes, the doctor represents an honored profession . . . his professional reputation and his record of service are his most cherished possessions.

According to a recent independent nationwide survey:

More Doctors Smoke Camels

than any other cigarette

R. J. Reynolds Tobacco Company, Winston-Salem, N. C.

POWERS PRESENTS

As Part of a Complete X-Ray Service

THE MAGAZINE CASSETTE

The capacity of standard chest x-ray equipment can be effectively doubled with the use of the *Powers Magazine Cassette.* Loaded like an ordinary camera with Powers X-Ray Paper, the Powers Cassette makes as many as 50 radiographs without changing or reloading. The roll cassette thus affords great savings in time and expense, and is rented by the company to the user. Other features of the complete Powers X-Ray Service are:

POWERS X-RAY PAPER, exceptionally economical. Available in standard cut sheet sizes, it has high diagnostic quality, proved by over 14 years of use in making more than 4,500,000 chest radiographs.

POWERS CASE-FINDING TEAMS using mobile, modern equipment provide full size 14" x 17" radiographs—operating anywhere and using regular 220 volt, A.C. power, enabling the complete job to be done with minimum expense and trouble and maximum speed.

For full details on the complete Powers X-Ray Service or any one feature of it, write to

Over half a million chest x-rays taken last year on Powers X-Ray Paper

POWERS X-RAY PRODUCTS

POWERS X-RAY PRODUCTS, Inc.

GLEN COVE, L. I., N. Y.

Group Radiography

petrolatum to promote optimal conditions for burn healing...

'VASELINE' PETROLEUM JELLY
is the world's leading brand of
PETROLATUM U.S.P.

With normal nutrition and absence of infection, the burned surface heals.

To prevent potential infection, and thus promote optimal conditions for burn-healing, prompt covering of the wound is imperative . . . with a dressing impervious to infection, non-injurious to cells, non-adherent to the burned tissue.[1,2,3]

Now . . . as a result of civilian disaster and burn tragedies of the war . . . a new treatment for burns has been developed.

In addition to plasma, and chemotherapy internally or intravenously,[1] burn surfaces are promptly covered with dressings impregnated with petrolatum. With these non-adherent dressings, wounds can be left to "rest" undisturbed for days, without the necessity for frequent changes of dressings...without the accompanying re-exposure of the burn surface to infection, too.

'Vaseline' Petroleum Jelly dressings, non-injurious to cells, protect against surface infection from the air . . . help relieve pain from exposed sensory nerve endings...promote optimal conditions for healing of the burn surface.

'Vaseline' Petroleum Jelly, for hospital and professional use, is available in tubes and jars at drug stores everywhere. 'Vaseline' Borated Petroleum Jelly in tubes only.

1. J.A.M.A. 125:536–543 (June 24) 1944
2. J.A.M.A. 125:612–616 (July 1) 1944
3. Ann. of Surg. 117-885 (June) 1943

Vaseline
REG U S PAT. OFF.
PETROLEUM JELLY

MADE ONLY BY CHESEBROUGH MANUFACTURING COMPANY, CONS'D,
NEW YORK, N. Y.

Progress ...AT A GLANCE

The POUR-O-VAC seal at long last bids farewell to a wasteful, inconvenient and questionably scientific method of sealing and handling surgical fluids.

HIGHLIGHT FEATURES INCLUDE—

- A practical vacuum closure for solutions, the sterility of which, during long storage periods, may be constantly determined without breaking the seal.
- Presents a sterile lip which will not contaminate contents when poured.
- Serves a secondary purpose of providing a dust-proof seal for remaining fluid when only partial contents of a container is required.

FITS ALL FOUR—
One Pour-O-Vac Seal will fit all 500, 1000, 2000 and 3000 ml. Fenwal Containers

REUSABLE... they may be sterilized repeatedly

A TIME AND MONEY SAVER, TOO!

Eliminates waste of unused or out-dated solutions.

No time-consuming or wasteful use of gauze, paper, string or tape.

Protects lips of containers against chipping or breakage.

Nurses will welcome the ease and simplicity with which sealing, unsealing and handling are accomplished.

ORDER TODAY or write immediately for further details

MACALASTER BICKNELL COMPANY
243 Broadway Cambridge, Massachusetts

Fenwal

Technical Achievement
...BEHIND THE SCENES

To our organization members, whose skills and devotion to a tradition have helped to maintain Kny-Scheerer instrument standards of quality, workmanship and service through 50 years of peace and wartime service, we express our humble gratitude—and the deserved acknowledgment of the surgical profession.

Four personalities, for instance, whose combined services total 153 years . . .

E. O. HABELSHOFER since 1903

G. BAUER since 1898

ROBERT E. HENRY since 1919

Little wonder that the K-S trademark is a recognized symbol of correctness of design, undeviating accuracy and functional dependability.

JOHN P. DOYLE since 1907

Available through leading dealers everywhere

KNY-SCHEERER CORPORATION

21-09 Borden Avenue Long Island City 1, N. Y.

Introducing a new treatment for

COMMON EYE INFECTIONS

Sodium sulfacetimide is the only sulfonamide which can be dissolved to a concentration as high as 30 per cent at physiologic pH. It is, therefore, both surpassingly bacteriostatic against a wide variety of organisms and virtually non-irritating—attributes which make it an especially valuable topical chemotherapeutic agent for prophylaxis and treatment of infections of delicate ocular tissues. SODIUM SULFACETIMIDE SOLUTION 30% has marked and rapid penetrating powers when applied locally in the form of eyedrops, reaching a high concentration in the cornea and conjunctiva within five minutes.

SODIUM SULFACETIMIDE SOLUTION 30% (*Sodium* SULAMYD)

is indicated for the local treatment of acute infectious conjunctivitis, acute corneal ulcer, acute blepharoconjunctivitis, hypopyon keratitis and for prophylaxis following foreign body injuries and abrasions of the cornea and conjunctiva.

Dosage: One drop placed in the affected eye every two to four hours. Available on prescription in 15 cc. amber, eyedropper bottles.

Trade-Mark SULAMYD—Reg. U.S. Pat. Off.

SCHERING

Schering CORPORATION · BLOOMFIELD, N. J.

IN CANADA, SCHERING CORPORATION LIMITED, MONTREAL

MUSEUM OF SCIENCE AND INDUSTRY
FOUNDED BY JULIUS ROSENWALD
JACKSON PARK · CHICAGO 37

August 7, 1946

Mr. C. H. Fleck, President
S. H. Camp and Company,
Jackson, Michigan

Dear Mr. Fleck:

Today marks the 10th Anniversary of the Transparent Woman exhibit and since the famous "lady" is making her permanent home in our Medical Section, we feel that the day should not be allowed to pass without some comment.

I vividly recall the premier of the Transparent Woman at Rockefeller Center in New York City before a distinguished assembly of physicians, scientists and educators. Its later tour throughout the Nation under the auspices of state and county medical societies and academies of medicine was a significant contribution to public health education. You are to be congratulated not only on your sponsorship of this important and effective exhibit but also on the ethical manner in which it was presented to the laity through the profession.

The Transparent Woman continues to be one of the major centers of interest at the museum. Practically all of the 1,026,250 visitors last year made her acquaintance and preliminary 1946 figures show the attendance running higher.

It is fitting on this 10th Anniversary of the Transparent Woman exhibit to again express our appreciation to you for your active interest in the Medical Section.

Cordially yours,

Eben J. Carey

EBEN J. CAREY, M.D., Curator,
Medical Exhibits

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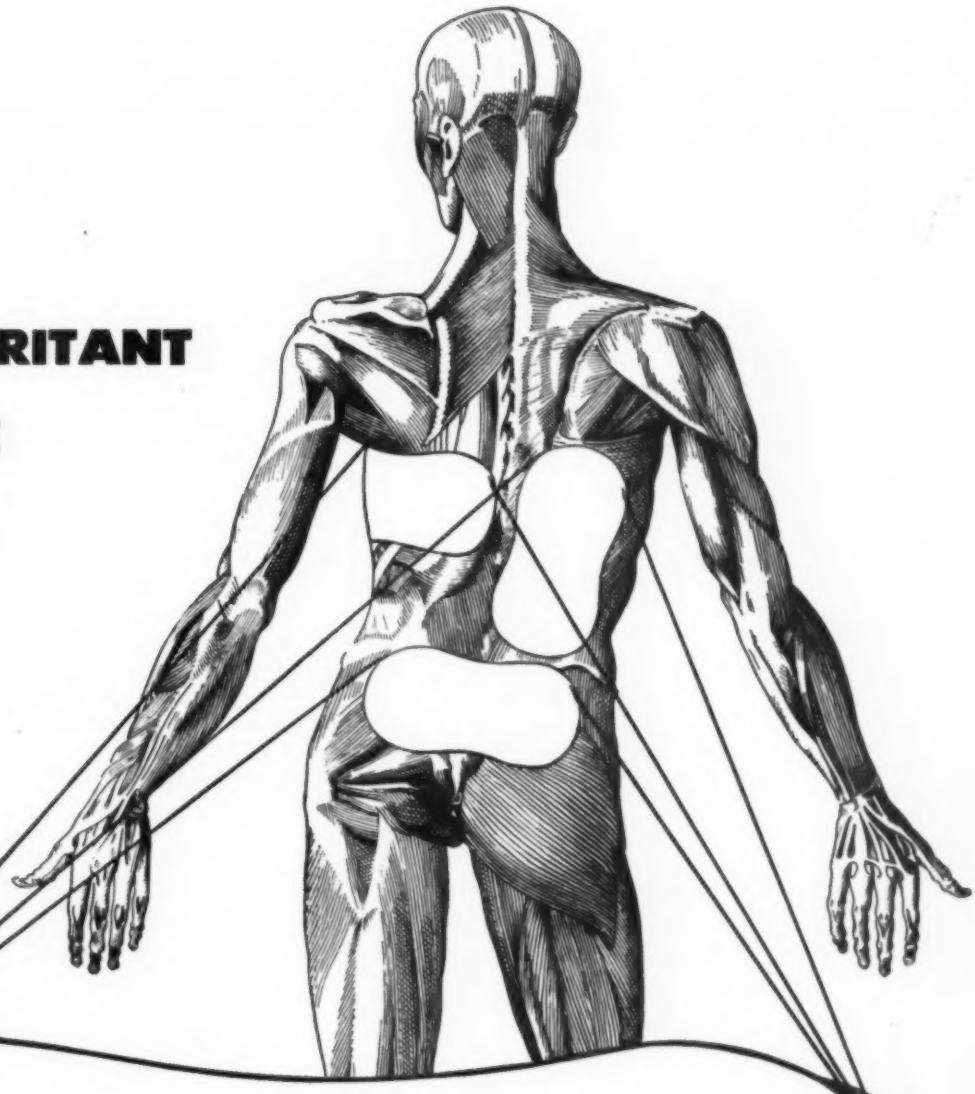

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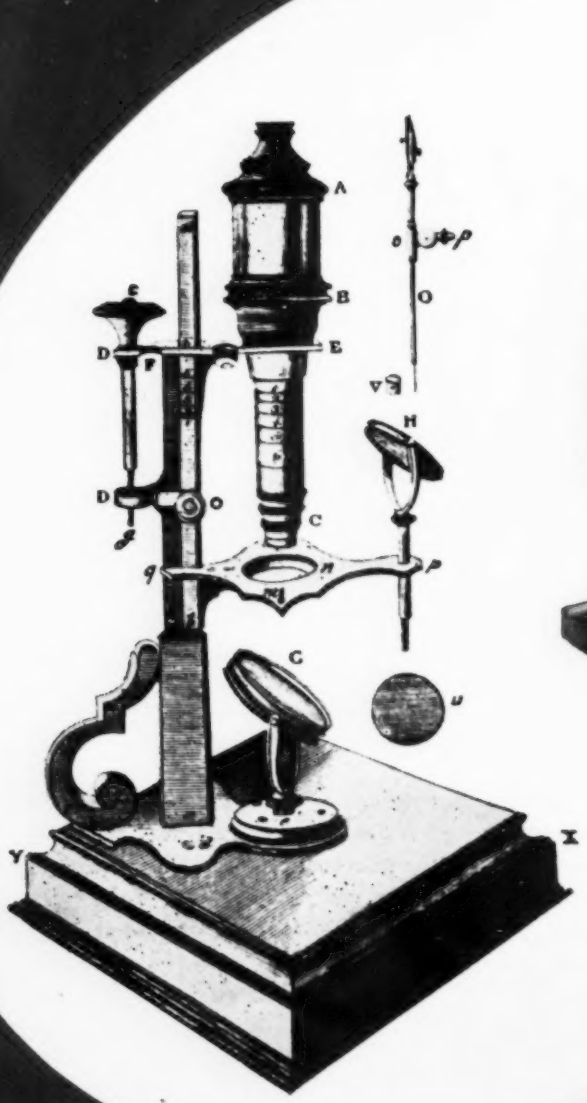

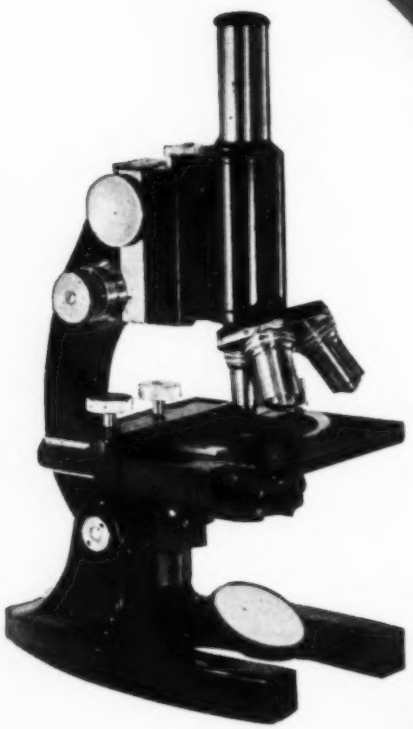

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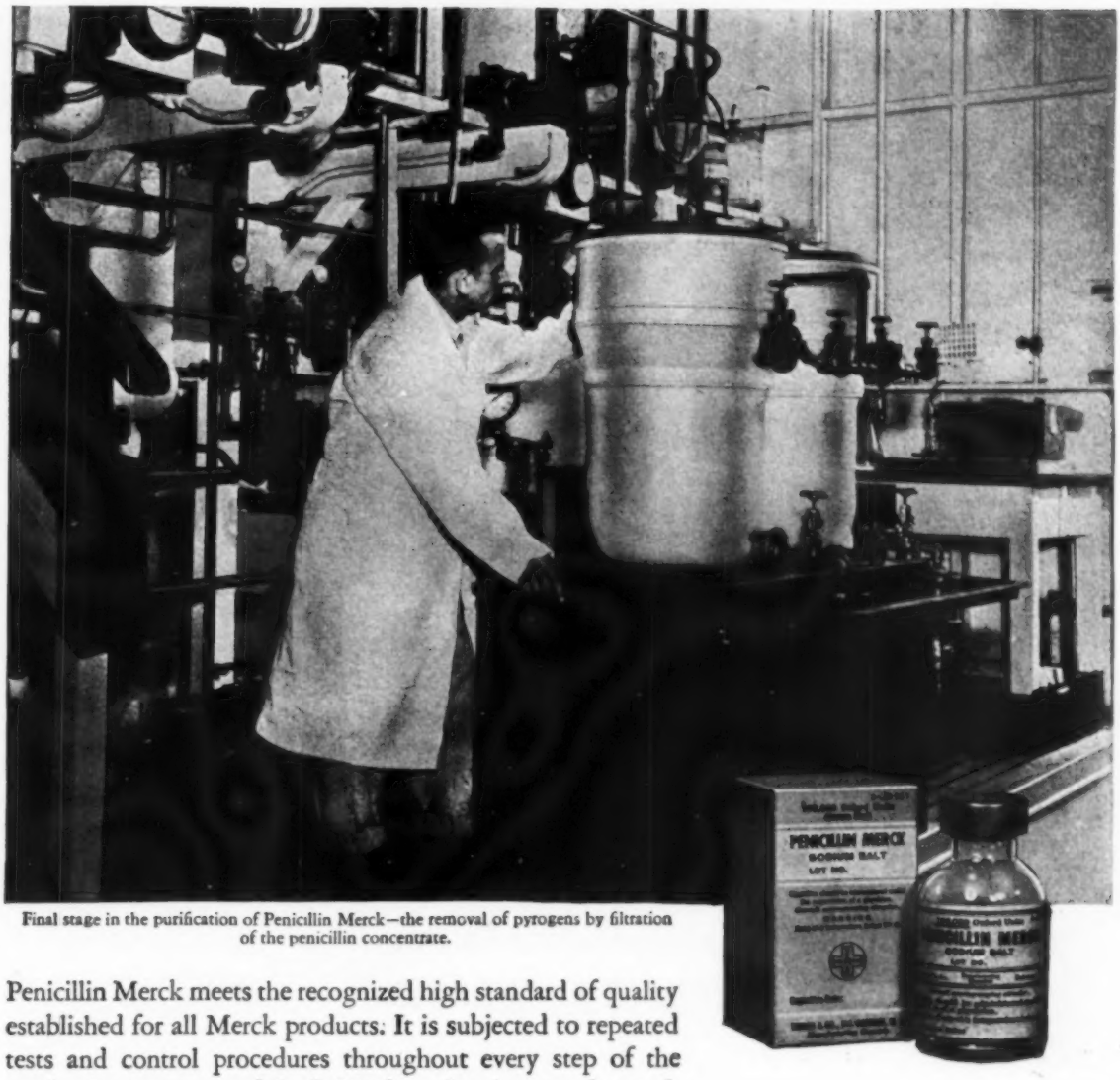

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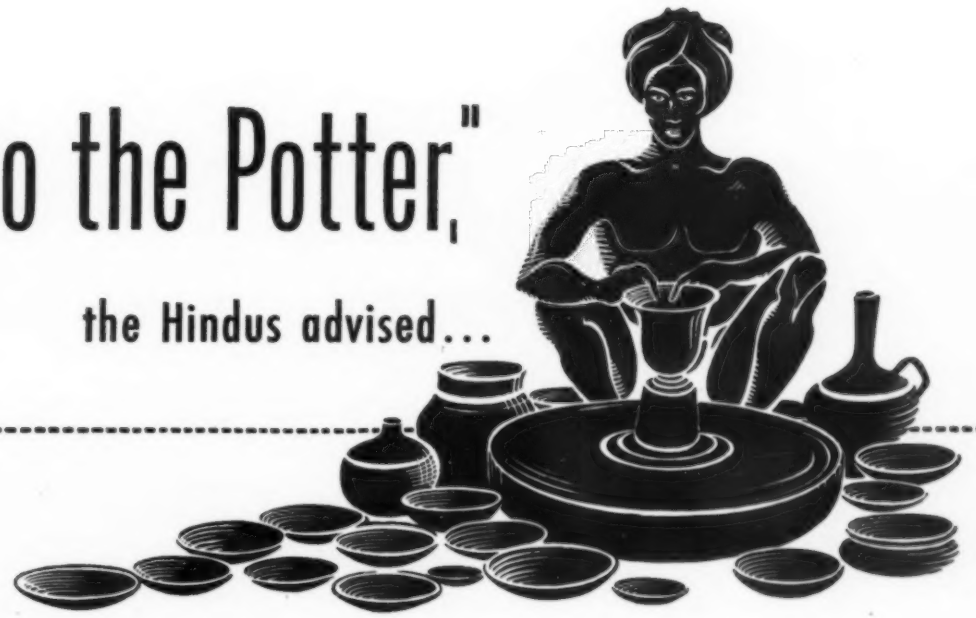

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**Ballingall, Sir George: Outlines of Military Surgery. Edinburgh, 4th ed., 1852, p. 358.*

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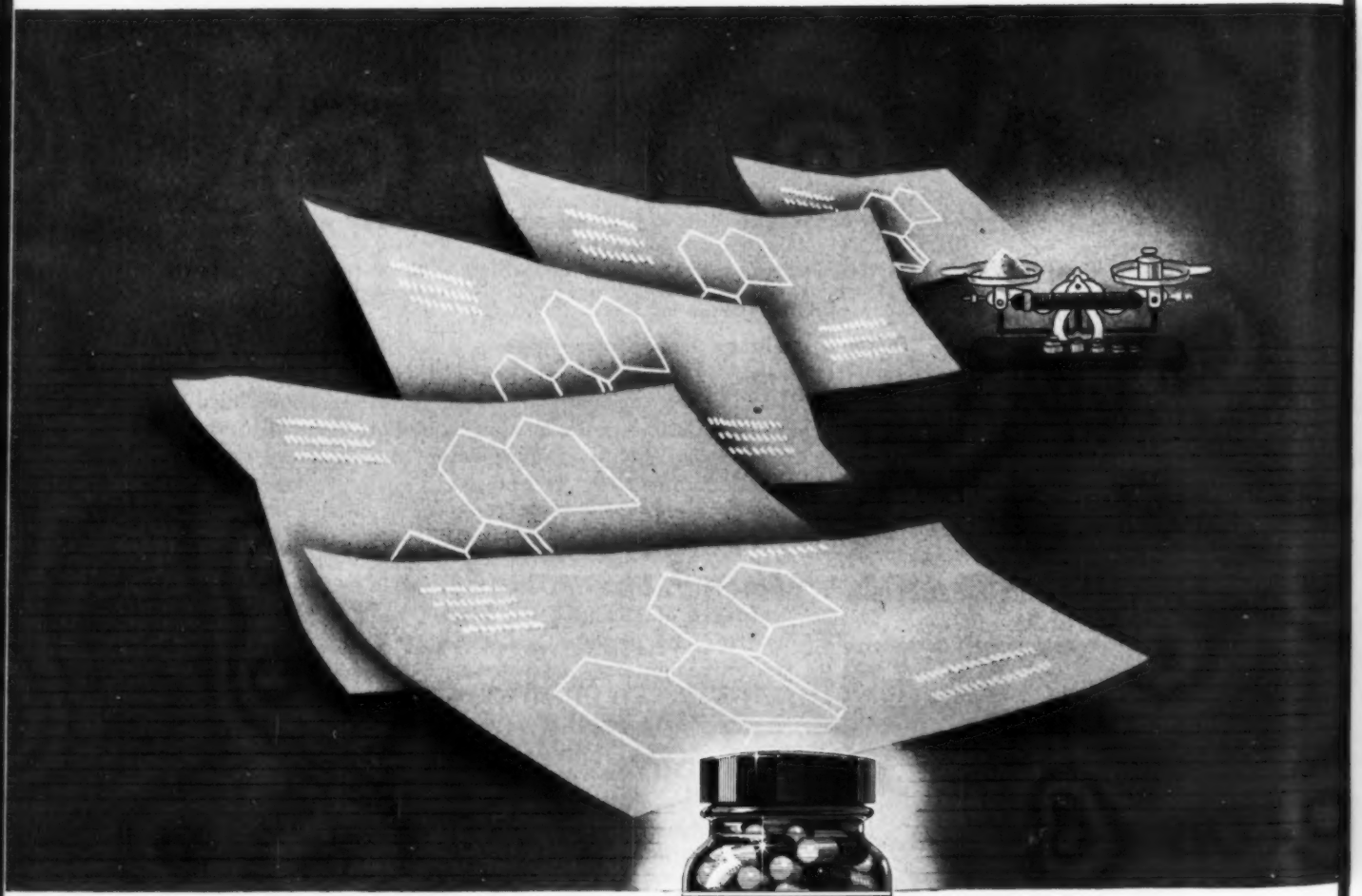

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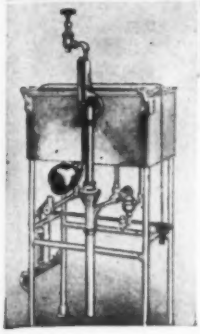

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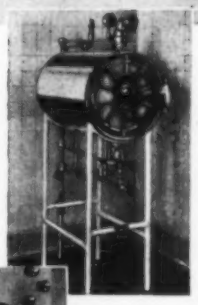

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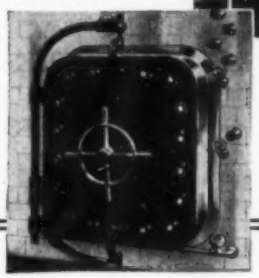

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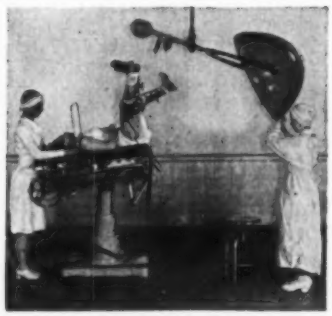

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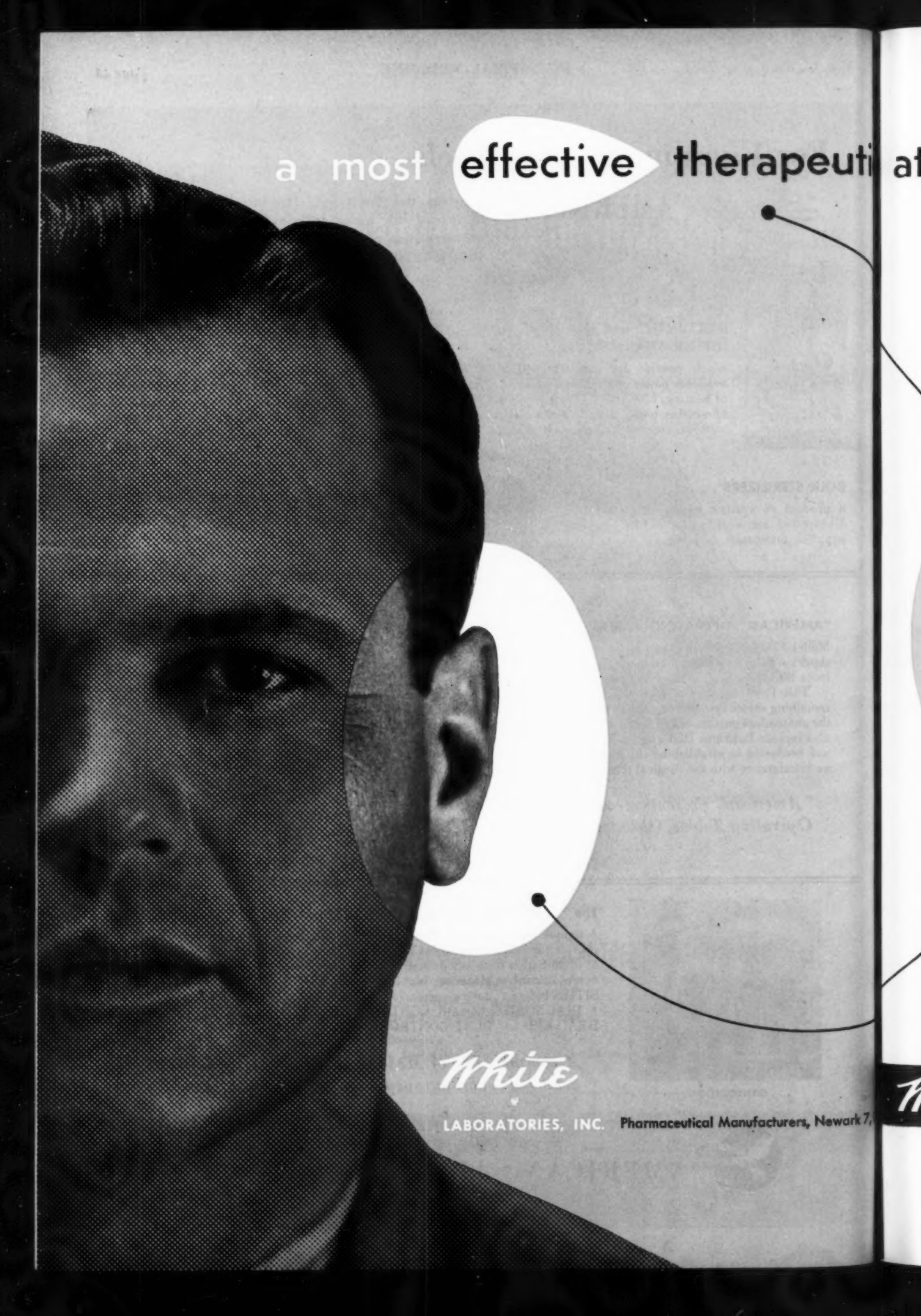
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This magazine is published to promote sound thought upon and concerning industrial medicine and traumatic surgery. To that end it will contain articles, news items, reports, digests, and other presentations, together with editors' comments. The editorial policy is to encourage frank discussion. On this basis contributions are invited.

Industrial Medicine

Reg. U. S. Pat. Off.

The editors will exercise care in checking on the accuracy of data printed but in all other respects articles and opinions of which expression is allowed are the opinions of their authors—the editors reserving in all cases the right to comment on the same in the current or any subsequent issues as they may be inclined.

The Journal of Industrial Health, Occupational Medicine and Traumatic Surgery

With which are consolidated "The Industrial Doctor" and "International Journal of Medicine and Surgery."

The Science, the Law and the Economics of Industrial Health

Volume 15 | September, 1946 | Number 9

Occupational Medicine

—Retrospect and Prospect—

M. N. NEWQUIST, M.D.,
President,
American Association of Industrial Physicians and Surgeons

THIS meeting, which is the thirty-first annual meeting of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, also marks its first peacetime conference after a second terrible World War. As we gather to discuss our peace time problems, may I say to our returning war veterans, "Welcome back!" and to our veterans of both the industrial and fighting fronts, "Congratulations on a job well done."

It is gratifying to note also that the high purposes or objectives for which the Association was founded have attracted such widespread and increasing interest and support that five organizations of physicians, hygienists, nurses and dentists have cooperated in this full week of conferences on occupational health.

Recent Health Experiences

DURING the war, the armed forces drew heavily on the medical manpower of the nation leaving many an industrial medical service so thin that certain health maintenance measures such as periodic physical examinations were largely discontinued. The remaining health services were directed chiefly to an abbreviated type of pre-placement examination and the care of industrial injuries.

Absenteeism increased, as was to be expected with the rapid acceleration of wartime industry. Industrial injuries, and total man-hours worked increased over 12% and 13% respectively in the period from 1941 to 1945. However, industrial organizations having well organized medical services and experiencing no great increase in total number of employees, exceeded only moderately the peace time absenteeism of 2 to 3.5%. "Boom time" plants, on the other hand, reported absenteeism rates ranging from 5 to 15% and at times even higher. Obviously, the latter sharp increase in absenteeism was not all due to illness or injury. Conditions peculiar to war time seem to pyramid in the "boom" plant, such as mostly new and dislocated employees, longer work days and work weeks, high earnings, difficult transportation and living conditions, and mothers working and leaving the children in day nurseries or to care for each other. All of these conditions were potent factors in why workers took an extra day off now and then for reasons other than their own sickness.

Fortunately, no serious *influenza* or *respiratory epidemics* hit our civilian and working populations during the war period. The relatively new antibiotics, which have proved to be effective against many types of infections, have reduced the mortality rate from *pneumonia* by approximately 50%. We hope that similar progress will be made in combatting the *"common cold,"* which is still the greatest single cause of absenteeism in industry. Perhaps the new influenza vaccine is a step in this direction.

Contrary to expectations, the death rate from *tuberculosis* decreased steadily during the war period—declining from a rate of 45.8 per 100,000 population in 1940 to 41.3 in 1944.

Nutritionally, our working population by and large did not suffer during the war. Certain food shortages and many inconveniences did occur, but food rationing was accompanied by compulsory enrichment of flour plus an educational program on foods and nutrition in general, so that today our people know more about foods and proper eating than at any time in our history.

Problems Ahead

WHILE we have had certain favorable trends, other experiences reveal that there is much constructive work yet to be done. Selective Service reported one man out of three as being physically unfit for military service in World War II. The same ratio held true in World War I. Evidently, there has not been much progress in that respect in 25 years. It is hoped, therefore, that industrial physicians and other health workers, dealing as they do with assembled groups of workers, will put forth greater effort in the future towards achieving and maintaining *physical fitness* among those whom they serve.

The *rehabilitation* of the disabled war veteran is an added task, but not an insurmountable one since rehabilitation, whether of a civilian or a war veteran, has long been a task of the industrial physician or surgeon. The successful completion of this job requires, in addition to skilled doctors and an opportunity for suitable employment, a definite desire on the part of the disabled to be rehabilitated.

President's Address, at the Joint Session, AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS and AMERICAN INDUSTRIAL HYGIENE ASSOCIATION, Chicago, April 10, 1946.

The National Safety Council reports that *accidents* are more costly in human lives than war. Total combat deaths in World War II were about 265,000 and about 650,000 were wounded; while during the same period, accidents on the home front killed 355,000 persons and injured 36,000,000, of whom 1,250,000 suffered some permanent disability. The war is over, but our peace time *casualty list* from accidents is continuing much too high.

Teaching of Occupational Medicine

FOR many years, medical schools have taught the role of infection, trauma, nutrition, et cetera in health and disease. Comparatively little, however, has been taught about the illnesses that may beset man as a result of the materials with which he works or the conditions under which he works. Even less has been taught about matters of organization and procedure required of an industrial health service in order to effectively maintain the health of the nation's workers, now numbering from 50,000,000 to 56,000,000. With the rapid expansion of industry, particularly in the fields of chemistry, many new problems in toxicology are being presented. To date, medical schools as a whole have not kept pace with this growing need, but there seem to be certain forces and movements under way to correct this situation.

Dr. Milton Kronenberg, in a recent survey, reveals that approximately 50 medical schools in the United States and Canada are presently giving some undergraduate instruction in occupational medicine, although in most instances the courses are not well organized. An additional number of schools are planning such courses in the near future.

Dr. T. Lyle Hazlett reports short indoctrination or refresher courses given by several medical schools during the past few years. One medical school has organized a post-graduate course leading to a degree, and a few more are contemplating such action in the near future. A certifying board in this specialty such as an American Board of Occupational Medicine, will very probably come into being as soon as sufficient undergraduate and post-graduate opportunities for instruction and training have been provided.

American Foundation for Occupational Health

THE American Foundation for Occupational Health was founded by the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS in 1945 for the purpose of promoting activities which will further occupational medicine and occupational health. Among its primary functions will be the aiding of medical schools in organizing their programs for the teaching of occupational medicine, and the promotion of financial grants for fellowships. The Foundation has just compiled a preliminary booklet, "The Teaching of Occupational Medicine" for distribution to medical schools and others who are interested. Other constructive efforts will follow. The Foundation merits the financial support of all of us, physicians, employers, labor and others. Contributions to the Foundation should be tax exempt.

Recent experiences and trends have suggested certain other immediate objectives for attention by industrial physicians. They can be summarized in recommendations as follows:

1. Make greater use of psychosomatic medicine. Evaluate "temperament" more carefully in addition to the usual appraisal of mental and physical qualifications of applicants and employees. This must be done in order to achieve efficient selective placement.

2. Strive for closer cooperation between governmental agencies making mass chest surveys in industry and the respective plant physicians. The doctor, as the plant health officer, should be informed of the results of the surveys in order to expedite a prompt and more efficient follow-up.

3. Lend support to voluntary pre-payment medical and hospital care plans in order to make adequate medical care more generally available. Such plans make it economically possible for many employees to take corrective measures recommended at the time of periodic physical examinations.

4. Continue our efforts towards making available better health service for small plants.

5. Continue to keep industrial health services ethical in scope. Efforts towards health maintenance are not limited to the confines of the plant or to the eight hours spent therein. The worker will be best served if there is close cooperation between industrial physicians, private practitioners, governmental and other health agencies.

The future of occupational medicine is bright. The future of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS is bright. In this respect, we are neither at a cross road nor a fork of the road. Our objectives directed toward health maintenance of the worker are clear and our road is straight ahead.

The Industrial Environment

ROBERT A. KEHOE, M.D.,
President,
American Industrial Hygiene Association

THE deeply appreciated honor of holding the highest office in one of the organizations which meet here today, gives me an opportunity to address my colleagues and fellow-members in two of them, and perhaps in others as well. It is to both of the organizations officially represented on this program that I wish to speak. If I seem to emphasize the importance of greater understanding of certain problems, on the part of physicians, it is because, as a physician, I can do so without professional discourtesy or lack of grace.

The professional people who are gathered together here have cause to rejoice that the disastrous war which has disrupted so many of our activities including those which characterize these meetings, is now a thing of the past. On behalf of the AMERICAN INDUSTRIAL HYGIENE ASSOCIATION I greet our membership and the members of other organizations represented here. On this occasion we might all be disposed to breathe a sigh of relief, to settle down in an atmosphere of good fellowship and mutual congratulation, and to relax a bit in the feeling that the most difficult period of our joint activities is now behind us. During the war the significance of good health and stamina on the part of those engaged in industrial production came to be much more apparent than it had ever been before. Our field of professional endeavor was recognized, and was also more clearly defined. Our coming of age, in the professional sense, has been accomplished to a degree, by the only means which, in other phases of human life, differentiate adolescence from adult stature—that is, by the acceptance and discharge of responsibility in relation to a necessary task. We found the task, and to the best of our abilities, we performed it, and with reasonably satisfactory results.

Let us consider our situation carefully, however, before we allow ourselves to relax too much. We have

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President's Address, at the Joint Session, AMERICAN INDUSTRIAL HYGIENE ASSOCIATION and AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, Chicago, April 10, 1946.

much work and searching ahead of us before we shall have visualized our job clearly and learned how best to go about it. We have yet to achieve that synthesis of our professional disciplines and responsibilities that should eventually weld us into a unit which can plan together and act with competence to achieve our joint purposes. It is neither necessary nor desirable to stifle the competition between the several groups who contribute to the promotion of industrial health. It is of the greatest importance, however, that these groups should work together in mutual understanding and respect and not disperse their several energies in opposing each other. The collective representation of physicians, physiologists, biochemists, analytical chemists and engineers in the membership of the American Association of Industrial Hygiene gives concrete evidence that this situation has been recognized to a degree, and the holding of this joint convention and the planning of joint programs are matters of similar import. However, there is room for doubt that our situation is appreciated as it should be and must be. Let me ask two questions that may give point to my skepticism. To what extent has it become the accepted practice to organize the facilities and personnel concerned with safety and health, in industrial plants and in industries as a whole, into a coordinated unit? Where have means and facilities been provided for the instruction of those who are to engage in this field of work, either in the fundamental or the practical sense?

These are very simple questions, and they are by no means all that might be posed. However, I venture to suggest that few of us can give an answer to either that will be reassuring. We are in fact dealing with a rather new concept, and, to be sure, we must proceed with patience and also with a degree of caution, proving our ground as we go. There are reasons for hope and even for enthusiasm, not only because of what has been accomplished, but, in much greater measure, because of what can be done. On the other hand, this is no time for smugness or self satisfaction. Neither the physicians, nor their more recently acquired colleagues who practice other arts and disciplines in this field, have acquired the knowledge, the skill, or the point of view that is necessary to protect and promote the health of our industrial population, and to develop this priceless asset to the full. Nor are there adequate facilities for the research and professional instruction that would cultivate such knowledge and pass along, effectively, such knowledge and the skill to which we have referred. In short, we have not achieved the professional position to which we aspire, nor shall we be able to do this and to deserve the respect which the scope and importance of our field of endeavor justify, until we have pooled our interests and professional resources, clarified our minds as to our mutual needs and potentialities, and established the correlative disciplines of both instruction and practice that will produce the industrial hygienist of the future whether physician or engineer or some combination of both.

To make matters clear, we may indulge in a bit of over simplification. As a group facing the same general problem, industrial hygienists are concerned with the industrial environment in the broadest sense of the word on the one hand, and the response of human beings to environmental conditions on the other. The environment, whether office or assembly line, is to be understood in all of its aspects, and in so far as it is necessary and wise to do so, as determined by the needs of the human mechanism and personality, it is to be controlled. Knowledge of the various characteristics of the environment can be obtained in any effective sense only through the combined efforts of the physicist, chemist, engineer and physiologist (using the latter term in its general sense.) The human response to the environment is within the province of the physiologist, but here also the assistance of the physicist and chemist are required; and unless the variegated pattern of this response is properly studied and interpreted, all attempts at modification or control will be futile and may be disastrous. It must be apparent, therefore, that broad information as to the environment and the human response thereto is the foundation upon which all the work of industrial hygiene must depend.

Now in general practice, the study and control of the industrial environment, in the specific instance, is regarded as the responsibility of the industrial hygiene engineer, while the interpretation of the human reaction is the job of the physician. Because of this conventional division of labor, we are tending more and more to separate these two functions as completely as possible in matters of training, experience and organization. The result is certain to be disagreement, professional strife and the dissatisfaction that follows failure to achieve the desired result. Neither group can accomplish its purpose without an understanding of the fact that the character of the environment and the response to it constitute only opposite facets of the same problem. One is non-existent without the other, and both are so deeply rooted in human physiology as to be utterly inseparable.

There is, therefore, a basic training and a fundamental viewpoint which must be achieved by all who expect to take an intelligent and effective part in setting up the policies and procedures which make up the day's work. On this common ground of thinking, the physician and the industrial hygiene engineer (to use a term that may not be apt but will convey our meaning) can apply their various specialized techniques with all the ingenuity and competence which each can muster and with the mutual benefit that attends the adaptation of varied means to a common end.

Until means shall have been evolved for providing the necessary type of training whereby a new generation of industrial hygienists will come into being, there are certain general principles which we who work in this developmental period might well bear in mind. These principles are very simple. Our goal is not the expansion of professional prestige. Rather it is the improvement of the health and well-being of our industrial population. If we accomplish that we shall have all the recognition that we require to gain the necessary financial and social backing for our work. We must be on the alert to learn everything that will facilitate this improvement. We physicians cannot ignore any call for medical service on the part of the injured and ill, but we must not fail to recognize that our primary job in industry is so to understand man and his environment as to prevent his illnesses and injuries, and to promote his health and happiness. Our colleagues, the industrial hygiene engineers, can help us greatly in acquiring this knowledge. These associates, on the other hand, must not scorn the clinical and physiological knowledge of the physician, incomplete and imperfect as it may be at times, and must not think they can handle the environmental problems without regard to what can be learned about the human equation. Engineering methods of control, as our clinical means of study, are merely the tools of our respective trades. Both must be applied together, in joint humility because of our combined ignorance, and yet in mutual respect, because of what has been and can be done by each for the other.

Perforating Ocular Injuries

PERRY E. DUNCAN, M.D.,
Springfield, Illinois

THIS paper on perforating ocular injuries is based on a report of two cases. While nothing essentially new is presented, it may be worthwhile on occasion to review some of our clinical experiences in order to remind ourselves of some of the things we already know. We are not interested at this time in a complete review of the literature. Any who so desire may make comparison with published reports. It is intended to emphasize at the onset that both of these are industrial cases.

It is highly important from the patient's standpoint that every effort be made to preserve the injured eye, so he may continue to pass industrial visual requirement tests and to maintain his employability.

Before surgery can be considered, several questions about the injured eye must be answered. The cornea and sclera should be thoroughly examined for evidence of penetration, since tiny missiles may enter the eye and leave minute scares that are almost invisible.

An x-ray of the posterior, anterior, and lateral projections of the orbit should be taken in every case in which there is a suggestive history. Occasionally, the subsequent value of x-ray evidence in the court room cannot be over emphasized. If evidence of a foreign body is seen on the test films, then one of the several methods of exact localization, such as the Sweet procedure, should be carried out. Fortunately, most metallic bodies are magnetizable. Of the alloys, magnesium steel has very slight magnetic properties. Chromium and tungsten alloys are not markedly different from ordinary steel in this respect.

Generally speaking, the foreign body should be removed as soon as possible after the injury. If, however, signs of marked iridocyclitis are present when patient is first seen, it is better, in my opinion, to wait until the reaction has quieted down, since an inflamed eye does not tolerate operative trauma well.

When the foreign body is located in the vitreous chamber, it is, I believe, preferable to extract it through the pars planum of the ciliary body as Verhoeff has advised. However, in one of the cases I am going to report, this procedure was not followed. The pars planum measures about 4.5 to 5.0 mm. posterior to the ciliary portion. This places the ora serrata about 7.5 to 8.0 mm. from the limbus, and it is at this point that the retina proper terminates and is more firmly attached than anywhere else except at the entrance of the optic nerve. The pars planum portion of the ciliary body is only several cells thick and rather adherent. The vascular elements of the pars planum consist mainly of relatively few veins which run parallel in a meridinal direction to drain into the vena vorticosa There is no chorio capillaris in this area. Thus, the pars planum presents an area through which the vitreous cavity can be entered with the minimum trauma through ocular structures, according to Barbour.

Lancaster describes the modern diascleral method of extraction of foreign bodies. He advocated the scleral incision by layers with a diathermy knife to avoid hemorrhage. He describes the application of the tip of the hand magnet to the incision, with the extraction of the foreign body without entering the vitreous. The cutting current of the diathermy knife should not be allowed to act on the vitreous, but he does not state whether the uvea is actually penetrated with the section of the knife.

Struble utilized a lead marker on the sclera in a majority of those cases wherein a posterior approach was indicated. This was in no way a reflection on the ability of the roentgenologist who had performed the localization. As a matter of fact, it is extremely difficult to mark on the sclera the exact sight of the x-ray localization of the foreign body. This is due in part to the difficulty in picking up the exact meridian indicated, and is especially true if the fragment is far posterior when the globe must be thoroughly pulled to one side—referring especially to those instances wherein repeated localizations may possibly vary by one or two mm. but where this error may place the particle either in or out of the globe. Such a marker can be quickly and easily fastened by shaving a piece of lead with a sharp knife so as to secure a fragment approximately 2½ by 2 mm. in size. This lead fragment is fastened around and pinched in a silk suture attached to a scleral needle. In any case the size of the marker should be so distinct and of a size differing from that of the retained intra-ocular foreign body that no confusion will arise in viewing the film taken in surgery with a portable machine as to which is the marker and which is the foreign body.

Such a procedure will, to some extent, prolong the operating time. This can, however, be kept to a minimum if a portable x-ray machine is available when needed, and if rapid developer solution is used. Some additional minutes are lost in re-draping the patient following the taking of x-ray pictures during the operation, but Struble and Croll have found the procedure well worth the time required.

Case 1

A MAN, age 43, on August 20, 1945, was referred by Dr. H. M. Wolfe, of Taylorville, Illinois. Four days previously, while hitting a chisel with a hammer, a piece of steel struck his right eye. The findings were: his vision right eye, hand movements at one foot, left eye 20/20. The cornea of the right eye showed a linear scar 1.5 mm. in length which penetrated vertically through the entire thickness located 6 mm. from the limbus at 2:00 o'clock. On transillumination, a hole was seen in the iris. The pupil was slightly smaller than that of the uninjured eye, and reacted readily to light and accommodation. There was mild circumcorneal injection. Ophthalmoscopic examination showed a partially opaque lens with a red fundus reflex.

He was sent to Memorial Hospital, where a radiographic examination by Dr. Edward King reported as follows: posterior, anterior, and lateral films of

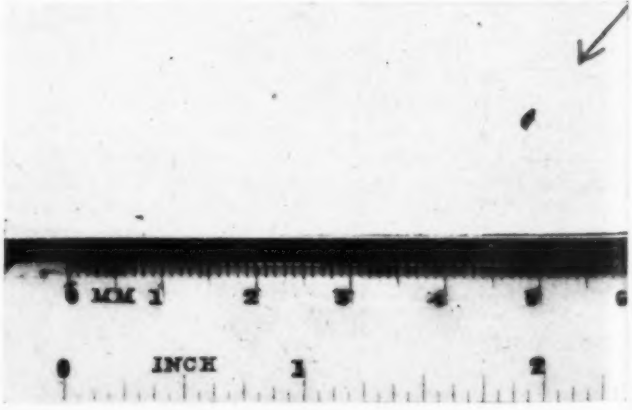

Fig. 1

Read at the Central Illinois Society of Ophthalmology and Oto-Laryngology, April 27, 1946, Decatur, Illinois.

the right orbit, projected in the usual manner, revealed the presence of radiopaque foreign body in the right, apparently within the eye; with the contact lens the body was localized to the right in the 120 meridian as indicated by Line C. D., 7.2 mm. out from the antero-posterior axis of the eyeball and 4½ mm. posterior to the plane of the limbus. This position placed the particle in the anterior vitreous overlying the squamous portion of the ciliary body. The fragment is of a metallic density and measures approximately 1½ x 1 x 2 mm.

OPERATION: The patient was prepared as for any intraocular operation. Four percent cocaine was instilled for local anesthesia. The Van Lint type of akinesis was used. One and a half cc. of 2% procaine was injected retrobulbarly. A scleral suture was placed for the purpose of traction. The broad tip of a Sweet hand magnet was placed in contact with the cornea 6 mm. from the limbus at 120 meridian. The foot switch was closed and the foreign body drawn into the anterior chamber and removed through a keratome incision. Two drops of a 2% pilocarpine solution were instilled in eye, and both eyes were bandaged. He was given 9 cc. of boiled milk intramuscularly, 25,000 units of penicillin solution every three hours for seven days, and 15 grains of sulfadiazine Q. I. D. for three days.

When he was dressed on the second postoperative day, the anterior chamber was formed, the pupil was contracted and centrally placed. On the ninth day he was discharged from the hospital. On September 9, 24 days after the injury, he was discharged for duty. Vision in the injured eye was 20/400; tension with Schioetz's Tonometer was 19 mm. Three months later he accepted Sphere +0.75 Cylinder +0.25 Axis 180, giving him vision of 20/25 minus two. The iris with two iridotomies was not adherent to the anterior capsule of the lens, which was partially opaque. The vitreous showed a few thread-lke floaters, and there was no evidence of retinal detachment.

Case 2

A MAN, aged 53, was referred to my office December 5, 1939, because of pain in the left eye, having encountered smoke in this eye one week previously. He gave a history of an injury in this eye in 1919, 20 years before his visit to my office, while employed by a railway company. He was chipping a carter key from a winding shaft on a steel car when a foreign substance struck the left eye. He stated that there had been no vision in this eye since that time, and he had received compensation for a total loss of vision in this eye.

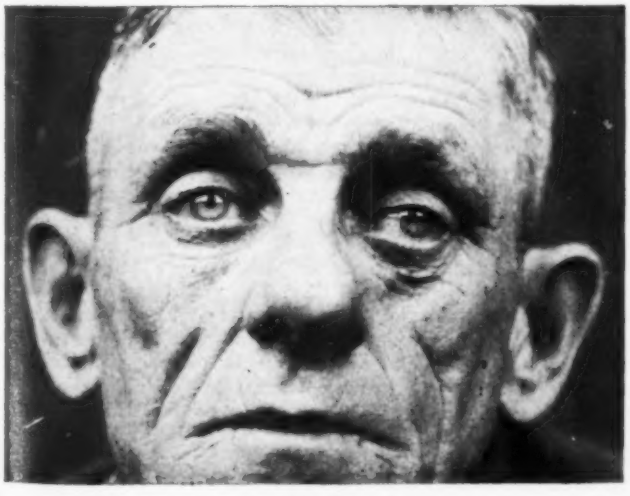

Fig. 2

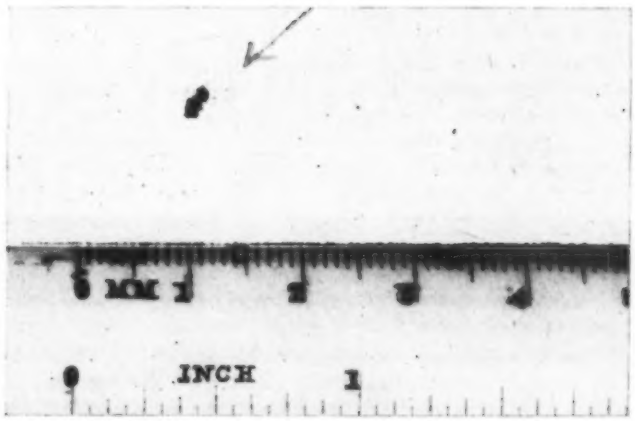

Fig. 3

EXAMINATION: vision right eye 20/25, left eye good light perception and fair projection. There was a mild circumcorneal injection. Several yellowish-brown discolorations were observed on his blue iris. The pupillary border of the iris was partially fixed to the anterior surface of the lens. Assuming the pigmented areas were due to siderosis, I applied a Lancaster magnet, and found that the iris moved. He was sent to St. Vincent's Hospital at Taylorville for test x-rays. The films of this case have been destroyed, but the x-ray report by Dr. F. Y. Kuhlman showed that films of the left eye revealed a metallis particle about 2 x 1 x 5 mm. in size, the situation of which indicated that it must be in the globe, probably well anteriorally; although this is not positively determined on this type of x-ray examination.

The operative technique in removing this particle of steel from the iris was similar to that used in Case 1. On the fifth postoperative day he was discharged from the hospital. Four days later at the office, tension with Schioetz's Tonometer was 55 mm. The circular adhesions of the pupillary border of the iris caused an iris bombe with secondary glaucoma.

On re-entering the hospital, under cyclopropane anesthesia, a Grafe knife was passed horizontally from limbus to limbus across the horizontal diameter of the

Fig. 4

eye, transfixing the cornea and penetrating the bulging iris.

The siderosis is still present, as may be observed in the picture. The tension with Schioetz's Tonometer is 20 mm. There is good light perception and fair projection.

BRIEFLY, to summarize, two industrial cases have been reported. In the one the steel was removed five days after the accident. The steel penetrated the iris and the lens. No doubt, the iris facilitated the closure of the lens capsule, thereby preventing the aqueous from coming in contact with lens fibers. The steel was removed with a magnet through the anterior chamber resulting in a clear, centrally-placed, round pupil with binocular vision. Penicillin and sulfonamide and foreign protein were possible factors in keeping down infection.

In the second case the steel was removed after having been in the eye 20 years. A traumatic cataract was produced and the siderosis still remains.

In conclusion, this paper is presented as a demonstration of the advisability of an x-ray in every suspected intra-ocular foreign body case, with the removal of the intra-ocular steel as soon after injury as feasible. In the first case there was no siderosis, owing to early removal of the foreign body, and there was good binocular vision. In the second case where removal of the steel was delayed, there was siderosis bulbi.

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The Safety Engineering Unit

—Of the State of Michigan Department of Labor and Industry—

THE Safety Engineering Program of the Division of Labor, State of Michigan, is comprised of four major elements. First and foremost is the fostering of industrial safety throughout the state. This phase of the program has received acceptance by leaders in industry and the established safety movement in the state, and in outline as follows was given the approval of a representative group attending an initial meeting, Thursday, June 6, at Lansing, Michigan.

At the suggestion of George W. Dean, Commissioner of Labor, industry has appointed a committee for carrying out preliminary phases of this undertaking. This committee is headed by John L. Lovett, manager of the Michigan Manufacturers Association, with C. E. Wormuth, manager of the Detroit Industrial Safety Council, as co-chairman. Their purpose is to: (1) establish new councils in areas which, at present, do not have organized safety councils; and (2) bring in existing local safety councils to a coordinated effort. This part of the Safety Engineering Program is proceeding rapidly and concrete results will be announced in the immediate future.

Another phase of the program referring to a statewide industrial safety conference to be held in the spring of 1947 has also passed the preliminary stage of development and arrangements for this meeting are now under way.

A second function of the Engineering Unit is to render safety engineering technical services at the request of industry and the various agencies in the state and to interpret the technical findings of other agencies.

A third function of the Engineering Division is to promote cooperative arrangements with the established Bureaus of Industrial Hygiene and thus aid in the rendering of more efficient industrial hygiene services to the state.

A further function is the up-grading of the factory inspection services which are responsible for the execution of safety measures. Preliminary work has been started on all these plans which give promise of serving both labor and industry.

The following is an outline of the Industrial Safety Program—a phase of the Safety Engineering proposals which has already been activated:

The state labor laws place the responsibility of industrial safety in the office of the Commissioner of Labor and the industrial employers of the State of Michigan. It is generally accepted that a State Industrial Safety Program should be established in connection with that office and the employers of the state. For the purpose of discussion, the following outline is presented:

Objective: To establish industrial safety councils in areas where industrial employment warrants, and to assemble such councils in a State Industrial Safety Program to ensure continuous effort to minimize injuries in industrial employment.

Local Councils: In that existing local industrial safety councils have unquestionably diminished the hazards of industrial employment, it is advisable to establish local industrial safety councils where no council obtains at present. These councils are completely independent groups formed by local industry as part of a unified State Industrial Safety Program.

Through the State Industrial Safety Program, the local councils after formation are rendered such services as assistance with the general safety program, speakers, literature, films, etc., also specific engineering consultation service if needed, compilation of statistical information on industrial safety.

This outline is not presented as complete but rather as a basis for discussion.

The State Division of Labor through this Program would provide a method of assembling, evaluating and distributing information on industrial safety through an annual state-wide industrial safety conference in which local councils would participate.

GORDON C. HARROLD, PH.D., has been consultant on this project, and, as consultant, is now Chief Safety Engineer with the Michigan Department of Labor and Industry, his office for this work being on the 15th floor of the Cadillac Square Building, Detroit. MR. JAMES ROOK, formerly with Chrysler Corporation, is Assistant Chief Safety Engineer, and will have his headquarters at Lansing.

Why He Takes the $20

FOR the benefit of those persons who have been complaining about the veteran's bonus and unemployment benefits here is a story: A few days ago I applied for work at one of Chicago's largest companies and was turned down because I wore glasses, despite the fact that the company has many men with glasses already on the same job. In regard to these commercial physical examinations, I have yet to pass one, but when I was drafted in 1942 nobody seemed the least bit worried by my too, too, terrible eyesight (and I wore no glasses then) and it didn't prevent my serving 44 months in the Army, 22 of them with the engineers in the jungles of New Guinea and the Philippines. My health has been such that I have missed exactly one-half day from work since my high school graduation in 1929 and I weathered the New Guinea malarial attack so well that there has been no recurrence, so you can see that I'm not quite a physical wreck. My military service was just about as involuntary as it could be, so I expect no special consideration for it, but I sure would like to find an industrial physical as easy to pass as that through which I breezed at induction. In the meantime, until such time as I can find an employer who is more interested in my capabilities than in my being in shape to go 15 rounds with Joe Louis, I'll continue to collect that $20 per week and the poor taxpayers have my deepest sympathy.

—"A Digusted Vet," in *Chicago Daily News*.

BERT HANMAN, Chairman, presiding. (Left to Right) F. W. HUNTER; R. O. SCHOFIELD, M.D.; HENRY H. KESSLER, M.D.; O. W. PRICE; EDWIN E. GHISELLI, PhD.; HARRY B. HICKER; W.P. SHEPARD, M.D.; ROBERT T. LEGGE, M.D.; RODNEY R. BEARD, M.D.; FRANCIS B. QUINN, M.D.; W. F. DURAND; GEORGE S. ENNIS; KARL M. BOWMAN, M.D.; RUTHERFORD T. JOHNSTONE, M.D.; GEORGE O. BAHRS

THE WORKER AND HIS JOB

—Symposium at the Annual Meeting of the Western Association of Industrial Physicians and Surgeons, San Francisco, June 30, 1946—

DR. RICHARD O. SCHOFIELD (President, WESTERN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, Sacramento, California): Ladies and gentlemen, we will come to order to hear the Symposium on "The Worker and His Job."

The type of man who originally entered into the work of industrial surgery was not of the caliber that medical science or the medical societies liked to include in their membership and look up to for the advancement of medical science. For that reason, the original industrial physicians and surgeons were frowned upon by organized medicine. However, throughout the years there has been a changing attitude in the relations of labor and the employer, and on the part of industry and those who are associated in the production of goods; and with this has come a change in the social as well as the economic aspects of the relationship. This is a result of legislative influences as well as the spirit of cooperation.

There has also come a change in the attitude of the man who is doing industrial surgery, and this in turn has brought about an advancement in the type and degree of preparation that he should have to carry on this kind of work. It has brought him into contact with all of the arts and sciences, and with the methods of production that man knows in this Industrial Age. For this reason we are having today a symposium entitled "The Worker and His Job." It brings in not only clinical medicine, but also the things that the years of economic progress and social relations have shown to be essential in the operation of United States of America—that is, the relation of the individual to his job and what may be expected from him—moral obligations as well as physical obligations.

Today, this Seminar is to be conducted by MR. BERT HANMAN, who has been engaged in personnel research in a number of pioneering field studies, and who has been responsible largely for the development of technics for analyzing the physical demands of jobs and the physical capacities of the workers in order that the physical characteristics of workers and jobs may be matched properly. His plan is recommended by the National Research Council and the National Safety Council, and by professors in various schools of psychology and medicine, as well as used successfully in various industries.

I now give you the chairman of the Symposium on "The Worker and His Job," MR. BERT HANMAN:

CHAIRMAN HANMAN (Berkeley, California): Thank you DR. SCHOFIELD. The members of this symposium are fresh from a luncheon discussion of our subject, "The Worker and His Job." We all hope that our presentation to you will be as interesting as our preliminary discussions were to us.

I would like to explain the mechanics of this meeting. We will hear first from our four principal speakers. They will speak for about 15 minutes each. Then we will hear from our 10 experts for about five minutes each. Then will come a question period. Please formulate any questions you may wish to ask and save them for the question period. Following the question period, there will be a discussion period where speakers will be recognized from the floor to discuss subjects related to our topic.

And now for our subject, the complex yet understandable "Worker and His Job." That our subject is complex is obvious enough from the size of this symposium, but that it is understandable and will be understood is also obvious if you will but pause to sense the high caliber of our speakers, and in turn pause to sense the high caliber of our audience.

Ladies and gentlemen, I have the honor of presenting the accomplished members of this symposium. First, our four principal speakers:

DR. HENRY H. KESSLER, Newark, New Jersey, member of the American Medical Association Council on Industrial Health, speaking on the physical rehabilitation of the worker.

DR. KARL M. BOWMAN, Professor of Psychiatry, University of California, speaking on the mental rehabilitation of the worker.

PROFESSOR EDWIN E. GHISELLI, Associate Professor of Psychology, University of California, speaking on industrial psychology.

PROFESSOR W. F. DURAND, Emeritus Professor of Mechanical Engineering, Stanford University, speaking on industrial engineering.

Next our 10 experts:

DR. W. P. SHEPARD, Metropolitan Life Insurance Company, Clinical Professor at Stanford School of Medicine, expert on public health, education and insurance.

DR. RODNEY R. BEARD, Medical Director of Pan-American Airways, Professor at Stanford School of Medicine, expert on industrial hygiene.

MR. FAY W. HUNTER, Regional Director of the U. S. Employment Service, expert on personnel practices.

MR. O. W. PRICE, Regional Director of the Veterans Administration Rehabilitation Service, expert on veteran rehabilitation.

MR. HARRY B. HICKER, State Director of Vocational Rehabilitation, expert on civilian rehabilitation.

DR. ROBERT T. LEGGE, Emeritus Professor of Hygiene, University of California, expert on Workmen's Compensation.

MR. GEORGE S. ENNIS, Regional Representative of the National Safety Council, expert on industrial safety.

MR. GEORGE O. BAHRS, President of the San Francisco Employers Council, expert on management.

DR. FRANCIS B. QUINN, Regional Medical Director until recently of the United States Civil Service Commission, expert on government employment.

And, MR. DAVID JENKINS, Executive Director, California Labor School, expert on labor, who, ladies and gentlemen, deeply regrets that he has been unavoidably detained at the eleventh hour and will not be able to be with us today to speak for labor.

You all know DR. RICHARD O. SCHOFIELD, President of the WESTERN ASSOCIATION OF INDUSTRIAL PHYSICIANS and SURGEONS.

Also on this platform with us, DR. RUTHERFORD T. JOHNSTONE, Program Chairman for the Fifth Annual Conference of the WESTERN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS.

Having introduced the speakers and having announced their subjects, the scope of this meeting has been suggested—industrial medicine, industrial psychiatry, industrial psychology, industrial engineering, public health, education, insurance, industrial hygiene, personnel practices, veteran rehabilitation, civilian rehabilitation, workmen's compensation, government employment, industrial safety, and the views of labor and management.

We shall now proceed to give you our picture of "The Worker and His Job"—the problems encountered, technics for helping to solve the problems, available service, residual problems, and hopes for the future.

Ladies and gentlemen, our first speaker, DR. HENRY H. KESSLER, speaking on "The Physical Rehabilitation of the Worker." DR. KESSLER:

DR. HENRY H. KESSLER: Two great historical events are taking place today which have world-wide significance. Now, I don't know whether this was part of the planning of MR. HANMAN to have the meeting held today, whether he had anything to do with these other two events, but I think you should know about them, and I am sure you do, and I am not being facetious when I refer to them. First of all, the ending of the OPA, and second, the fact that the atomic bomb will be exploded some time this afternoon at Bikini Atoll. Now, what do these events have to do with the worker and his job? Well, I was brought up with a rather broad and philosophic type of training, and I would like to look at the problems whole, and if you look at the problems whole, you will appreciate their significance. In the first place, the atomic bomb did more than simply create a big crater. It created, not only a geological crater, but it also created a psychological crater in that it stirred up certain strata of ideas in thinking which will probably change history during the next thousand years.

The war has changed a great many of our ideas about the worker and his job. A very recent example—I am sure it is in your minds as it is in mine—is the position that Mr. John Lewis took with respect to the health and the welfare of the miners. Workmen's compensation laws and the existing industrial health practices apparently had not met the requirements of the miners, and so Lewis proposed, and he has been able to secure, a rather radical and revolutionary method of establishing a health and welfare fund. This is an unusually strong idea; whether it is an advance or not, I can't say, but it is certainly a change of ideas. We are being challenged by a great many new ideas. The whole international situation is very controversial and is far from solution along any line, political, social or industrial, and we are being challenged, not only by the Russian scheme of life with its peculiar philosophy, but also by the biological problem of the population pressure of Asia. This may seem a little far-fetched, but nevertheless I see a relationship. A hundred years from now we may find this world a little bit different; we may find that our children and grandchildren have a little more Asiatic blood and color and general conformation. If this will be a threat to our way of life, then we must do something to prepare ourselves for that eventual threat. The only preparation we have is the development of our manpower.

We saw in the last war what a nation aroused to action can do in the way of developing and utilizing its manpower. In this last war we saw how a peaceful nation of bookkeepers and farmers and workers and high school boys licked two of the most powerful military dynasties in history. Now, our men were not heirs to any military dynasty, they had no special military training or point of view; they were just, as I say, men from the CCC camps and from the high schools and the farms and clerks in the offices. Despite their limited military conditioning, they were able to fend off these two powers. How did they do it? They did it by a radical change in our ideas and our concept of "The Worker and His Job."

For example, this war was won, not only on the battlefront, but also on the home front. On the home front, not by so-called normal people, but by the 4Fs and by women who have traditionally been considered to be physically inferior, and by superannuated workers. Here was a radical idea concerning the evaluation of the average individual's fitness for work. We have seen that individuals with a limited capacity to work may be employed successfully, provided the work is selected for them.

I was told a story not so long ago of a situation in this Bay Area of a blind girl being engaged by a man who needed help very badly, and he had no idea that she would have a place, a definite place, in his employment. She was a blind Dictaphone operator and he engaged her. He needed more help, and we suggested that he might engage another blind Dictaphone operator, and his reply was, "I have done my bit." He thought he was engaging her as a mark of sympathy. He didn't appreciate the fact she had a definite place in his employment. So, there has been a change, a radical change, in our concept of the individual's physical fitness for work. As BERT HANMAN has described in his research, the term has no significance at all by itself unless it is fitted to the demands of the job. Physical fitness by itself is simply an academic term, vague and without meaning, unless it is taken into consideration with the physical demands of the job. So this is a contribution of this war.

We have learned something about the untold and tremendous ramifications of the individual's ability to work, and it shouldn't have taken us so much time to solve that problem. We realized how many individuals who are physically handicapped in the past have made great strides and great names for themselves in all fields of endeavor, and that was due essentially to the safety factor. We are born with two lungs, and get along with half; we are born with two kidneys and we get along with half. The engineering profession can appreciate the importance of the safety factor, and yet we overlooked it.

Out of this war has come a new concept of physical fitness. A man is physically fit if he can do a good day's work. This has nothing to do with the anthropological set-up. The anthropologists love to classify individuals in separate groups, certain categories, such as the athlete, the symmetrically-built athlete who appears to be physically fit for all kinds of work because he has a form which appeals to the eye. Then there is the individual who has more girth than anything else, like me, and he, of course, is only fit for eating and not so much for working. Then there is the tall, slim fellow, who is skin and bones, who is supposed to have a particular type of nervous system because his epidermic structures and tissues have had the greatest development in his own evolution. The anthropologist would like to classify individuals along these lines.

It may be true that there is some relationship between

the normal functions, but unfortunately we do not run true to the pure form; there are too many mixed types. So the individual's capacity to work is limitless, provided he is given the opportunity.

This, then, is the first lesson of the war period with respect to the individual's fitness to work.

The second lesson which comes to mind is the tremendous progress made in the whole field of industrial medicine and industrial health, the maintenance of the worker on his job. Formerly there was the employment examination which helped the employer and the personnel officer to fit the man to his proper job, the periodical examination which kept him fit while at work, and investigation of the causes of illness and absenteeism. The latter, however, had been neglected, at least the interpretation of absenteeism has been neglected, but during the war we had the opportunity to study the factors which had to do with absenteeism. The individual didn't stay at home because he was "ornery," but because he was ill, and we learned as a result of proper investigation that most of the illnesses were due to respiratory infections. We learned that this holds true for the short-term absentee; while, for the longer term absentee, although respiratory infections have something to do with keeping him off of the job, degenerative diseases were also an important factor. Now, since we are a developing population, this will become even more important. The modern industrial medical officer views this problem from the broad public-health standpoint. If the hazards of the positions are such as to expose the older group to the increasing hazard of degenerative diseases, then, of course, placements should be made accordingly. The conditions of work also have been "rationalized." That is a word the International Labor Office has been wont to use. It is excellent. The conditions have been rationalized. It is a matter of common sense to make them fit the individual's capacity, so that maintenance of the man on the job means seeing that he is examined before he is put into employment. That is to see that he is placed in the proper employment, that the most favorable and opportune conditions of work are made available to him. In that way we have a productive worker and, what is even more important, a productive worker who works continuously. The productive worker who is only a part-time producer will be of no value to us in the future, when we need the utilization of our greatest manpower.

"Now, the third important contribution to the worker and his job which the war period demonstrated was the comparative ease with which we could put the man back on his job, once he was hurt. Rehabilitation has received a tremendous impetus by the work done in the Rehabilitation Service Centers, and by private industry and insurance companies. These various centers, private, public, industrial and military, have done a job, not only in rehabilitating the workers, but also in having demonstrated beyond any doubt the value of this scheme of things.

When John Lewis set up his Welfare Fund, he had a very justifiable explanation for wanting this fund. There were workmen's compensation laws in Kentucky, Alabama and West Virginia which presumably guaranteed the individual who was seriously disabled all the rights and benefits of the laws that give that man complete treatment and take care of his economic and social needs if seriously hurt. Since these laws failed him, because they were not carried out to the letter and to the spirit of the original legislation, it gave John Lewis an opening, an opportunity, to inject this new idea, an idea which has now been adopted by other unions.

Not so long ago I attended a meeting of the New York Claim Association. The Industrial Commissioner of the State of New York described the amount of work that they were doing in the handling of compensation claims. He told of the 11,000 or more claims coming to his office every day, and said that they were able to hear and discharge and complete 4,000 or 5,000 claims a day. He mentioned these figures with justifiable pride. He should be proud of the amount of work he is doing, but it was my impression when I heard those figures mentioned—well, I shuddered when I thought of so many compensation claims occurring and being presented day in and day out before that Commission, because each one of those claims meant an accident. It was an industrial accident, and I said to myself, "I don't want to work in New York; it is an unsafe place."

The second impression I got was that if they have to have so much litigation, if they have to hear so many cases, perhaps that is not the proper device for handing compensation claims. The idea was suggested that the hearing and adjudication of the claims should be taken out of Workmen's Compensation and put into the Social Security Agency, and possibly that had some justification. So you see, we are constantly being bombarded by these new ideas and suggestions, because we are living in a world of rapid change.

In the last war, you will remember that casualties in both theaters were rehabilitated after they left the hospitals, and in this war they were rehabilitated before they left. There is no reason why the same principle of complete physical restoration services and educational services and vocational guidance and training cannot be carried out in civilian life as is done in the military services. That is a great challenge, not only for industry, but for all civilian casualties and civilian handicaps, the creation of a new attitude on the part of the doctor, and on the part of the hospital. The hospital is not only an institution for the treatment of the immediate physical and clinical needs of the individual, but it must be viewed in a larger sense, as the agency by means of which the individual will be returned to his job, and to his family, and to the community.

CHAIRMAN HANMAN: Thank you, DR. KESSLER. Next, DR. KARL M. BOWMAN, who will speak on "The Mental Rehabilitation of the Worker." DR. BOWMAN:

DR. KARL M. BOWMAN: I would like to start off again re-emphasizing that the psychiatrist is a doctor of medicine, one devoted to a special field of medicine, one of a team interested in the health of the employee and, therefore, like the rest of the medical profession, concerned with the proper selection of personnel and in preserving their health, once they are in their jobs.

The psychiatrist does not come to this position waving a banner, announcing that he has the answer to all the problems of mental health and emotional turmoil. He is, I think, properly humble before the industrial problems which confront him, and realizes that he doesn't have a simple, easy answer to all those problems. He does recognize that he has to work more through others than through himself. By that I mean that the psychiatric viewpoint of understanding motivations, the emotional makeup of the individual, is something that cannot be handled simply by the psychiatrist, but is an attitude and understanding which he wants to get across to all of those working with the employee. That concerns not only the general medical profession who are concerned with this problem, but personnel managers and others. When we come to the selection of employees, what does the psychiatrist have to contribute? You may say, well, the psychiatrist can sort out those who are insane and who shouldn't be employed. Yes, he can do that, and it is a very simple task, but it should be a very unimportant part of his contribution, because, by and large, the problem of industry is not concerned with the psychotic or so-called insane person. There are a few such individuals in industry, and there are a number of them who are even working in quite a satisfactory fashion at their jobs. The mere diagnosis of psychosis doesn't necessarily mean that an individual cannot carry on his job. There are plenty of illustrations, not only for day laborers, but also for individuals rather high up on the scale who are suffering from a more serious type of mental disorder and who are, nevertheless, able to carry on their work in a satisfactory manner. So one should disabuse the rest of the profession and industry generally of the idea that a mere diagnosis of even the more serious types of mental disorder means that a man cannot function. It would be a question of the individual in every case.

Then we have the so-called "psychoneurotic." What

about him? We are concerned particularly with the returning veteran who has the NP diagnosis and from whom industry has tended to shy away. The important thing for everyone to recognize is that a very considerable percentage of competent workers in every level in industry, from managers down to the unskilled laborer, are psychoneurotics, and the mere diagnosis of a psychoneurosis means absolutely nothing as to whether a man can keep at his work. I would emphasize to you that the mere diagnosis of an NP appearing on a man's discharge from the Army or Navy should not be viewed with alarm and as a reason why the man cannot be taken into industry. Many of these men had been working in quite satisfactory fashion in private industry before the war, and it was because they could not make the change from all that was necessary in their attitudes toward private industry to the attitude necessary for military service that they had to be discharged with such a diagnosis. It merely means that they have then gone back as they were before. Many of them are absolutely competent workers.

I think that one of the points which those of us in psychiatry want to emphasize and re-emphasize is that these men who are coming back with such a diagnosis are, by and large, quite suitable persons for employment, and the NP label should not be allowed to disqualify them.

It is unfortunate that industry in the beginning took the attitude that it did. As a result, as you probably all know, both the Army and the Navy—I think the Navy first—tried to do away with such diagnoses and, by substituting other terms, discharged men without the NP diagnosis. That has been going on, and a great many of those men are being employed without anybody suspecting what their condition was, and everybody is quite happy about it. That, then, is the first point I want to make.

My second point is that an individual's ability to carry on in industry is determined by his motivations, his emotional make-up, and other factors just as much as his physical ability. That was emphasized by DR. KESSLER, who pointed out how many individuals carry on jobs for which they were supposedly not fitted. If we can develop suitable motivation, suitable interest and pride in work, many men will turn out excellent jobs who formerly would have been considered not competent for the particular job. So much for the selection of the worker.

Then, having selected the worker, there is the problem of keeping him on the job. What can the psychiatrist contribute to that? There are a number of points here that are of interest and I can mention only one or two of them, owing to lack of time.

We know that what is called fatigue in industry is largely emotional, much more emotional than actually any physical tiring. We know, therefore, that the emotional attitude of the individual, which is perhaps the special province of the psychiatrist, is in close relation to the problem of industrial fatigue. We know also that the psychiatrist has something to contribute in the study of accidents. We know that a large percentage of accidents occur in a very small number of individuals, which has led to the term "accident proneness." There are certain physical conditions, as reaction time and physical awkwardness, which may have to do with an accident, but we also know that the emotional attitude of the individual has a great deal to do with it—a great deal to do with this condition which we call "accident proneness." We know that certain individuals by their emotional attitudes are particularly likely to have accidents. We know that the emotional attitude of an individual at the time the accident occurs is of a good deal of significance. In a study which we made under OSRD of head injuries at the Langley Porter Clinic, we found in cases of delayed recovery that many of the individuals, who did not get over their head injuries and whose head injuries seemed to be more severe than those who had recovered, had been in a certain emotional attitude or turmoil at the time of the accident. There was bitterness over some incident or worry over something that had happened, or remorse over something done, and the individual transferred all of the unpleasant emotion to the physical symptoms brought about by the accident, and claimed that his illness had produced all of these symptoms, whereas, a careful study showed that such was not the case.

So we find that the question of whether an individual recovers quickly from an accident or injury often times depends upon emotional factors. We know that there are all sorts of motivations in this question of recovery which are primarily psychiatric problems. There is the problem of compensation, where the individual is paid to be sick. The whole idea of dealing with the veteran is along that line. One of the most difficult problems, toward which I don't believe we have had a good attitude, is that the minute you give a man compensation for developing or maintaining neurotic symptoms, you do something to make him keep up those symptoms. The symptoms have a cash value, and you are putting an awful strain on human nature when you ask him to give them up. Therefore, our system of compensation, as far as the psychoneurotic conditions are concerned, is wrong. Still no one knows what the final answer is, but we do know that this whole system of compensating a man, so that the more severe the symptoms, the more compensation he gets, causes a lot of these men to continue as chronic invalids.

I don't mean by that malingerers, I mean more subtle things than that. We know that illness may be a way of evading a task that an individual does not want to perform, or of gaining prestige, dominating others, controlling others—and so this whole problem of delayed recovery and invalidism and sickness and accidents is very much along the line of the work that we in psychiatry are doing.

In any study of rehabilitation, the psychiatrist should be one of the team who is dealing with these problems.

There is no time to go into further material, but I do want to say that our feeling is that there is a definite place for psychiatry, as one of the groups of medical workers, and that the psychiatrist has something definite to contribute in the selection of workers, in the placing of them in the appropriate job, in keeping them satisfied and competent in the work they are doing, and in the rehabilitating of them when they either suffer from accidents or injuries, or from illness.

CHAIRMAN HANMAN: Thank you, DR. BOWMAN.

DR. KESSLER and DR. BOWMAN have spoken on the physical and mental problems of the worker. However, what about the job? What about bringing workers and jobs together successfully?

PROFESSOR GHISELLI, will you tell us about the job, about "Matching Workers and Jobs?" PROFESSOR GHISELLI:

PROFESSOR EDWIN E. GHISELLI: The phrase "Matching the worker and the job" has been used so often in connection with personnel procedures, that hardly anyone has failed to become impressed with its significance. The difficulty lies in that the phrase carries with it the implication that the problem is simple and the solution wonderfully mechanical.

While it may not appear befitting to remind members of the medical profession that matters pertaining to human beings are never simple or mechanical, nevertheless, those of us who have to do with the administrative aspects of personnel procedures tend to forget that our basic considerations are not forms, schedules, and handbooks; but rather men, men who work together in a complex social and economic environment.

I should like to begin with some definitions, and I want to define terms, not so much as an exercise in semantics as a technique for clarifying the issues at hand. The clearer the picture of worker placement becomes, the less simple the problems will seem. Let us begin with the term "position." A position is a group of tasks performed or to be performed by a single person. So Jennie Smith who does my typing holds the position of clerk-typist (1). A job is a group of similar positions. Thus, the several positions of clerk-typist (1), clerk-typist (2), etc., constitute the job of clerk-typist. An "occupation" is a family of jobs with common characteristics. The jobs of clerk-typist, billing machine operator, stenographer, and the like, are grouped together in the clerical occupation. The term "job" then has a more general connotation than the term

"position," and the term "occupation" has a more general connotation than that of "job."

We will return to the implications of these definitions shortly, but let us turn to two other definitions. By "job analysis," I mean the procedures employed in collecting information concerning the nature and conditions of work, and by "worker analysis," I mean the procedures employed in collecting the necessary information about the desire for characteristics in the man who works at it, at that job.

"Job analysis," then, is concerned with the methods and procedures of work, and the administrative and physical conditions of work. These are characteristics which have been fixed by custom and tradition, by law, by collective bargaining conferences, and similar means. Although certain qualifications of the worker may be ascertained from the job analysis, in no sense does such analysis actually constitute or define worker requirements. It is the function of the worker analyst to describe the personal requirements of the worker.

Now, the first set of definitions we made forced us to make an important decision. For what are we hiring workers—positions, jobs, or occupations? The manner in which we make our job and worker analyses and the manner in which we examine our applicants will be a function of this decision.

While it may be true that in many industrial situations the positions that fall within a given job are so similar as to be indistinguishable, to hold that this is true for all jobs will lead to difficulties. Consider the two characteristics of emotional stability and division of attention as required by the street-car motorman. Are they the same for the position of the operator of the owl car in the outlying residential districts and the position of the operator of the 5:15 P.M. car in the downtown area? Is it possible that a particular worker might do well in the one position and poorly in the other? The answers, I think, are self-evident and negative. Whatever problems arise in the jump from "position" to "job" are quite naturally increased many times, as we jump from "job" to "occupation."

I might here insert a word of caution about relying too heavily on the similarity of job titles in placement. Two jobs of the same title may have very different sets of duties and requirements. For example, a man classified as an automobile mechanic may have the relatively less demanding task of, let's say, diagnosing engine difficulties, or he may have the more physically demanding task of actually repairing the engine, which involves crouching, sitting, pushing, etc. Similarly, a worker with the job title of "road construction laborer" simply may operate a broom, pushing gravel back and forth across a newly-made road, or he may be the driving force behind the pick.

We have said that job analysis is the process of uncovering and describing the nature and conditions of work, and worker analysis is the process of describing the characteristics, qualities, and abilities that are deemed necessary for the worker to have. Thus, job analysis gives us information about the tasks which are to be performed, and the conditions, physical and otherwise, under which they are to be performed. Worker analysis is the complement of job analysis. It gives us information about the physical and mental qualities that the worker must have in order to perform the required tasks under given working conditions. In placement, of course, we are more interested in the results of the worker analysis.

Let us now ask the question: How do we make worker analyses? In some instances we use empirically determined facts in setting worker qualifications. We say that a bus driver, for example, must be at least five feet, four inches tall, because we find by actual measurement that shorter persons cannot reach the controls. But, for the larger part, our point of departure in worker analysis is the job analysis, the description of the job. What we actually do is to infer from the nature of the job the physical and mental qualifications that the worker must have. Note that the process is one of inference and its basis is solely human adjustment. It, therefore, makes a great deal of difference who makes the judgment and draws the inferences. Even though I had a very clear notion of a particular job, neither I nor you, as members of the medical profession, would be particularly happy about any inferences I might draw about the physical qualifications and permissible physical limitations of the individual working at that job. I am an industrial psychologist and not an industrial physician. My diagnoses of coronary disorders are very poor. Similarly, I should not be too certain about any inferences that the industrial physician might draw about aptitude requirements of the job. Indeed, for a good picture of worker requirements, we should be seeking judgments not only of the physicians and psychologists but also the psychiatrists, sociologists and probably the social anthropologist.

But in the ordinary industry situation where we have many jobs to analyze and many men to place, we can't afford to hold academic seminars of learned professional men, however pleasant such sessions might be. A good solution is not impossible. The answer, I think, is given by the work of our chairman, MR. BERT HANMAN, on physical demands analysis in connection with the placement of the physically handicapped. If not explicitly, implicitly at least, MR. HANMAN argues this way: the physician, psychologist, psychiatrist, are all specialists and their specialties involve descriptions of people. A job analyst is also a specialist; his specialty is describing jobs. The placement officer is neither a specialist in describing men nor in describing jobs; his problem is an administrative one, namely, matching the two descriptions.

It is important to bear in mind the differences in the functions between the professional examiner, the job analyst and the placement officer. The one should not be making decisions that fall within the proper areas of the others; judgments made about the worker that should be made by the physician, psychiatrist or psychologist should not be forced upon the job analyst or the placement officer. Yet this is exactly what we do when we insist that the job analyst set the requirements for the job, such as strength of arms, finger dexterity, ability to perceive spatial relations, and the like. The task for the professional examiner, then, would be just to look for workers with these qualifications and half of the decisions that he should be making have already been made for him by the job analyst.

This process, as I have defined it, is worker analysis. In MR. HANMAN'S procedure, the job analyst describes the nature of the job in terms which are meaningful for the examiner and for the placement officer. Specific information is given about the various things that the worker has to do, such as lifting a 50-pound weight three hours a day, or climbing to high places 15 minutes a day, and so on. The examiner, whether medical or psychological, is provided with a list of the activities or tasks which might be required in any job. Every worker is evaluated in terms of his capacity to do each of these things. The examiner then is freed of having to remember the nature and requirements of an endless number of jobs. The examiner's evaluations are passed on to the placement officer who simply has to match the certified capacity of the worker with the description of the various jobs as given by the job analyst.

Just as the physician, psychiatrist, and psychologist, are specialists, specialists in describing worker requirements and qualifications, so the job analyst is a specialist in his own right. He is an individual who is trained and experienced to study and describe the nature of the industrial tasks and the conditions of work. I would like to stress the point that the position of job analyst is a highly technical one. This work cannot just be done by just any one. In a classical investigation of office workers, it was found that a relatively superficial analysis of the duties yielded less than one-fifth of the actual duties that the workers performed. What we need in the field of job analysis is trained observers, persons who know what to look for and who can present their information in a meaningful manner to the professional examiner and to the placement officer.

I confess to a certain simplification of MR. HANMAN'S procedures, but I wanted to point out the importance of

proper recognition of the functions of the examiner, and the job analyst, and the placement officer. It is necessary that we should not confuse the functions of the three persons.

There are two further considerations which are significant in placement procedures. First, the meaningfulness of the characteristics for which the worker is to be examined, and second, of the follow-up evaluation of the procedures. A few years ago I was shown the results obtained from a series of physical examinations. Each individual had been examined by two or more physicians. The pertinent finding was a surprisingly low degree of agreement between the physicians examining the same person. Should one conclude from results such as these that the industrial medical examiners are likely to be highly unreliable? Is that the conclusion we should draw from these data? I think not. The clue to the answer comes when you consider just one of the qualifications for which the physicians were instructed to examine, namely, "normal color vision." Note that there is no statement of the manner in which color vision is to be tested. Furthermore, the standard of just what constitutes normality is not given. Under such circumstances, the examining physician must necessarily depend wholly upon his own judgment. All that he knows is that he must investigate the worker's color vision. The major task really is to try to guess what he is examining for. The chief capacity that we demand of the examining physician when we give him such a task to do is not medical knowledge, but extra sensory perception. Too often the requirements of jobs are described in such general terms that any examination of workers under these conditions must necessarily be unreliable. The source of unreliability, then, is not the examining physician, but the nature of the examination that we set for him.

The requirements for a job must be stated, not only in specific terms, but also in terms which are meaningful for the examiner. Just as it is impossible for the physician to examine an abstraction as "normal color vision," so it is impossible, I think, for the psychiatrist to consider "emotional stability," and certainly impossible for the psychologist to consider "ability to perceive spatial relations." He can not examine for that. Meaningfulness of requirement is an essential step to reliable placement.

The last step in setting up a placement program is the evaluation of that procedure. We would not accept a psychological test of mechanical aptitude unless it was found the scores on that test correlated with some measure of the proficiency on the job, even though the job were of a mechanical nature. Sensory and discrimination tests used in picking out probable accident makers would not be considered unless it could be demonstrated that the use of such tests actually reduced accidents. In the procedure of physical demands analysis for the placement of the physically handicapped, a similar follow-up must be effected. Here the evaluation is more difficult and subtle, but certain indices such as the saving in manpower, lost time, accidents and the like, can be considered, and they certainly can be measured.

In any event, no matter how well our placement procedures are planned, we should not be satisfied just with the plan. We must be able to demonstrate a statistically significant saving or improvement. General subjective opinions about the efficacy of a plan will not suffice. Merely the plant manager's statement that he is satisfied with the plan is not sufficient. The facts of the case are necessary.

The description of placement and the problems as I have given them here may well suggest that that is quite a static affair and this, of course, is far from the truth. Placement is a dynamic and ever-continuing process. The placement of John Jones does not end when we give him a certification in the finishing department as a buffing machine operator. Before too long, Mr. Jones will be back with us with some problem or other, and so will his foreman and his supervisor. There are many working adjustments which cannot be foreseen. Perhaps working conditions change, or he incurs disability, or he gets married and life takes on a new and different meaning for him. At any rate, we have to solve these new problems as they come up. Not only must we deal with the new problems of Jones, but also we must undertake to train others to recognize these problems when they arise. Part of foreman supervisory training and, indeed, worker training falls within our province—I mean within the province of industrial physician, industrial psychiatrist, and the industrial psychologist. It may be said that the basis of the placement is prediction, the prediction of worker success and adjustment. Even at best, the prediction of human behavior is far from perfect. Placement, therefore, must necessarily be a continuing process.

CHAIRMAN HANMAN: Thank you, PROFESSOR GHISELLI.

We shall hear now from PROFESSOR W. F. DURAND on the important subject of "Industrial Engineering." May I say, PROFESSOR DURAND, we feel particularly honored in hearing from you. PROFESSOR DURAND.

PROFESSOR W. F. DURAND: I have interpreted this topic as dealing with the measures necessary for the start of a large industrial enterprise, comprising questions of location geographically, location locally, structures, equipment and organization.

Under location geographically, there are three aspects, all of which must be carefully considered and a due balance struck. These are location relative to sources of raw material, location relative to the market for the product, and location relative to the supply of the particular types of labor required.

Affecting the question of location locally, there are considerations relative to proximity to rail transport or water transport, the discharge of smoke or noxious gases or of acids or corrosive fluids.

Affecting the question of the building are the values of land as influencing a choice between a one-story structure spread over a considerable area, compared with a multi-storied structure occupying a reduced area. The character of the industrial operations involved will also have a bearing on this choice. In a multi-storied structure, the need for adequate fire escape provisions must, of course, receive proper recognition.

Coming now to the important subject of equipment, there must be adequate provision for lighting, heating and ventilation, with suitable provision of wash-rooms and toilets for men and for women and with some provision for rest for the latter.

Then there must be hospital and first aid facilities, cafeteria and provision for mid-shift lunches, and perhaps cots for rest during mid-shift periods or at stated intervals. Then, external to the building, there may be a gymnasium and recreation fields for baseball, football and tennis.

Again there must be provided, in connection with the industrial equipment, numerous safety devices; fire extinguishers or an automatic sprinkler system, careful protection against electrical hazards, buzz-saw guards, protection against exposed belts, meshing gears, against the explosion of grinder wheels, railings around elevated posts of work, protection against grinder dust, noxious gases or vapors, acids or other corrosive agents, with abundant distribution of drinking water fountains, with salt for use in hot weather if operatives are subject to profuse perspiration.

I shall say nothing regarding technical equipment, since this will depend wholly on the nature of the product.

Under the head of organization, there will be, in addition to the conventional President, Vice-President, Secretary and Treasurer, a Director or Superintendent of Production with his staff, division overseers, section supervisors, group leaders, interviewers and operatives, together with hospital and nursing staff.

A word with reference to the function of the interviewer, a relatively new element in industrial organization. The interviewer talks with the operative at convenient intervals, encouraging him (or her) to talk freely on any subject of interest to the worker. The interviewer avoids direct questions, but endeavors rather, by indirection, to draw out the operative to talk freely and fully about his work, his relations with his neighbors and with

his environment generally, his likes and dislikes, personal interests other than in relation to his job, possibly of domestic and personal problems and conditions, thus giving to the operative an opportunity to externalize his personal conditions and problems and, in many cases, obtain mental and emotional relief for pent-up troubles and worries.

The picture of the worker thus revealed may enable the interviewer to bring about changes in his working conditions or environment which will aid markedly in developing an increase of harmony between the worker and his job.

I now wish to utilize my few remaining moments in saying a word on certain broader aspects of the problem. And first, a word regarding accident proneness. Certain operatives seem naturally unlucky—prone to accidents. Such conditions should be recognized by supervisors, and arrangements made to give to such persons work with the minimum of industrial hazard.

And now a word as to fatigue. Under the conditions of modern industrial mechanization, muscular fatigue is of small relative importance. The great enemy of industrial efficiency is fatigue, mental or psychic due in large measure to the extent to which modern industrial processes involve repetitive operations in the carrying out of which, lack of interest and boredom tend to develop. These conditions should be taken into consideration by management and a serious effort made to ameliorate this condition, in so far as possible, by rotation of jobs.

And finally, in my judgment, the great advance toward harmony between the industrial worker and his job, and broadly between management and labor, must be sought by way of a careful study by management of this complete problem in the light of its many phases and conditions as brought into evidence by the talks to which we have listened today.

Industrial workers are human beings and subject to influence through the appeals to which humanity at large is responsive, and with careful study and recognition of the many facets of this problem of the worker and his job, and taking into full account the physical, mental, emotional and psychic make-up of the industrial worker in relation to his job, I can see the promise of a new and fairer horizon in the relations between management and labor.

CHAIRMAN HANMAN: Thank you, PROFESSOR DURAND. Ladies and gentlemen, during our luncheon today we discussed a number of interesting questions and we all think that the audience would like to hear these questions and have our experts discuss them very briefly.

One question was, "What are the sources of outside help for health protection in industry?" DR. SHEPARD, will you please discuss this question?

DR. W. P. SHEPARD: In the few moments available to each of us, I can do little more than to point out that health protection is obviously a responsibility of industry. For the purpose of this discussion, "industry" would mean both labor and management, and health protection includes safety and emotional as well as physical health. Now there are some of these responsibilities that involve operations beyond the factory gates. They involve the use of community agencies to a greater or lesser extent, depending on how much of health facilities the industry itself has. But no industry today is completely self-sufficient. All depend to some extent on community health agencies. Thus, I would like to outline for you what these responsibilities are, and where industry can obtain the help that it may need. There are seven areas of responsibility, and I shall hastily and briefly give you the all-around picture as we see it today.

First, is the area of toxic hazards, which is obviously of first order of importance to industry. No industry purposely means to injure its employees by exposing them to toxic hazards. In this field the industry's own medical department would be of first importance. Unfortunately, some industries don't have a medical department of their own, and even if they do they will frequently wish to call upon their insurance companies for such advice and assistance as they may give in the presence of known or suspected toxic hazards. Next, the State Department of Health or its representative, the local Health Department, may frequently be of great assistance by giving expert surveys and impartial judgment as to the extent of the toxic hazards and their remedy. In most states, this comes under the State Department of Health, though in a few it is under the State Department of Labor.

Second, is the area of safety. No industry wishes to injure or expose its employees to undue safety hazards and here, of course, the industry's own safety engineer is the first in importance. Again, if the safety engineer needs assistance, or if there is none, then the insurance company, whether workmen's compensation or life or other types of insurance, can frequently give assistance. Next, there is the National Safety Council and frequently a local or state Safety Council. They are of great assistance, and you will hear more about them.

The third area of responsibility is in the general field of sanitation. Here again management is largely responsible for sanitation, but not solely. It must provide, for instance, adequate hand-washing facilities and toilets. It must likewise train employees to handle these facilities properly; and thus personnel management comes into it. Sanitation problems are sometimes intricate and difficult. Frequently assistance can be obtained from the local Health Department, or from the insurance companies.

Fourth, there is that very large area of medical care, and it frequently is a troublesome matter with management. In many industries, if they are fortunate enough to have a well-staffed medical department of their own, it may do well in the complete medical care of the sick and injured, depending upon the policy of the company. If not, the insurance company will frequently be of assistance and will advise on such matters as workmen's compensation and various other forms of coverage. The industry may or may not have complete coverage for indemnity insurance on sickness and accident. It will in most states today have workmen's compensation. Then there are the so-called non-profit, pre-payment plans which are coming into vogue and enjoying a wide use. I refer to such plans as the Blue Cross, the California Physicians Service, and other similar agencies organized and largely operated by the organized medical profession in many states. Finally there are the tax-supported hospitals, city, county and state, to which the medically indigent can be admitted.

Fifth, there is the area in which industry is concerned with the administering of the community's relief and welfare activities. I refer there to the indigency that occurs in families of the workers, frequently the problem of unemployment, or of a seasonal nature. In this field there is certainly some necessity for industry to be aware of the rules and regulations and facilities available through county welfare or relief departments.

Sixth, there is the area of vocational rehabilitation, which can hardly be touched upon here because it will be dealt with more adequately later. Here again, help may be obtained from workmen's compensation, or from the State Bureau of Vocational Rehabilitation, or its local representative.

Last, but by no means least, is the field which is largely untilled, that of health education. By that I mean also safety education. I suppose if our public health problems were boiled down into one phrase we would find that they were principally connected with the problems of health education. There are a few companies doing a nice job. Many of these you know, but for the most part we have paid little attention to the potential as well as the demonstrable values of health and safety education among our employees.

Here again the local Health Department is of considerable value, especially in quite recent years when well-trained, fully-qualified health educators have become available—people who know better than we do how to apply the vast array of educational technics that are now at hand. There are frequently union health committees, which will do a great deal to improve the health knowledge and practice of the employee if encouraged and made use

of by industry. Finally, there are the public schools. The day will come when we are successful enough in our health education in the schools so that we shall eliminate a large fraction of our present-day health problems, which cause so much concern today.

CHAIRMAN HANMAN: Thank you, DR. SHEPARD. What is the role of the industrial physician in maintaining the worker's health?" DR. BEARD:

DR. RODNEY R. BEARD: Of course, any discussion of this question must presuppose that you start out with a good knowledge of the worker's health status when he begins on the job. There hasn't been a great deal said this afternoon about the pre-employment or pre-placement examination, but, of course, it is so essentially a part of this whole field that it has been implicit in the whole discussion. Once you have the man on the job and you know what his potentialities are, then the problem of keeping him in good health can be approached under the following headings:

The doctor must have intimate knowledge of the hazards which are present in the individual job within the occupation within the industry which you are studying. He has to be able to anticipate what is likely to happen. Knowing what the hazards are, then he must have special knowledge of the diagnostic means by which to recognize early damage while it is still correctible, so that the man can be put on another job or in some way protected before he has sustained any serious damage. Knowing what the hazards are and what they do to the men, then he has to look to the men, which procedure he carries out through a variety of measures. One of these, of course, is a periodical examination. These should be carried out at stated intervals. The stated intervals should not be established as so many years, months or days, for all men in the factory, but should be established on the basis of the individual man and how often he needs to be looked after in the light of the job he is doing. Special examinations will be used in connection with special hazards. For example, if you have people exposed to silicosis, you certainly can't get along without frequent x-ray examinations. In lead poisoning, you must frequently examine the blood or urine or both.

A phase of this which doesn't relate particularly to any special job is giving aid to minor illnesses and in the early stages of major illnesses. This is done with the idea that early medical care will prevent a major illness. It is done, I think, through the administration of simple medications and through giving hygienic advice. It doesn't mean that the medical department need take over the whole medical care of the individuals concerned, but if you help with the minor things, you can get acquainted with your men and when they need something more drastic, you are in a position to see to it that they get the necessary aid.

This is done through referring them to their own personal physicians, and here the industrial physician has a large part to play in maintaining the health of the workers. If his relationship with the private practitioners who are taking care of these men when they get sick is a good relationship, then he can contribute very much, because when a man has been sick and comes back to work, he sees to it that he is placed temporarily on a less demanding job that he can handle during a convalescent period. The return to normal earning capacity relieves some of the stresses which DR. BOWMAN suggested; sick-leave pay or accident compensation doesn't have a chance to become established as an incentive for continued symptoms.

Another item here is picking up the people who have repeated illnesses. This calls for adequate record keeping and it also calls for a lot of common sense on the part of both the doctor and nursing staff. There is nothing wrong with giving aspirin tablets to a man who says, "I have a headache," but if that man comes in five times within a month, then it is wrong to give him aspirin without doing something more about it. Whether you do a complete examination yourself or tell him that he ought to go to his own doctor and find out is immaterial, but it is necessary to follow up on on him.

DR. SHEPARD has suggesed the importance of health education. This can be carried out both on a general basis for all of the employees, or it can be carried out by individual instruction. The man who has just been sick is usually in a pretty receptive mood for training about how to avoid that kind of illness again, and each such opportunity must be used.

DR. SHEPARD also has mentioned the importance of sanitation, the removal in so far as possible of hazards from the environment. Certain phases of this are peculiarly the job of the physician, looking after sewage disposal, water sanitation, and hygiene with respect to infections and matters of that kind. In other fields, chemical poisons, dust, etc., the doctor doesn't have extensive enough knowledge to do a great deal, and he must call for assistance upon the industrial hygiene engineer.

In the matter of accident prevention, a part of this same general field, of course, he must turn to the safety man. All in all, this can be summed up as watching the man's whole job, his whole relationship to his work, keeping our eyes open, and taking the steps which will correct early deviations from normal.

CHAIRMAN HANMAN: Thank you, DR. BEARD. "How does the subsequent injury law serve the handicapped worker in California?" DR. LEGGE:

DR. ROBERT T. LEGGE: A year and a half ago the California Legislature was presented with a bill by Senator Mayo to amend the Labor Code, in which was introduced a Subsequent Injury Act. This bill was sponsored by Mr. Scharrenburg of the State Labor Relations Department, and endorsed by the WESTERN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, by the California Council of Agencies for the Physically Handicapped, and by labor and a number of other organizations.

As to the question of "How does the Subsequent Injury Law aid the placement of the handicapped?"—in the first place, it promotes a modern rehabilitation and a modern vocational education and training program.

Secondly, it influences modern pre-employment examinations in industry with a view to determining the health and the physical capacities of every individual, and then, by a system of modern job analyses, the man is ably placed in a position whereby he can earn his own living and preserve his own economic independence. Also, it has an influence on safety. Some of our safety laws have been improved to take care of the handicapped.

Third, it aids the Workmen's Compensation Commission and the State Insurance Fund so that they are able to evaluate and judge cases easily.

Fourth, it aids and benefits handicapped persons, who were formerly discriminated against by certain employers and some casualty insurance companies, by not holding the employer liable for more than the second injury alone as though no previous injury existed. Should a one-eyed worker lose his remaining eye, the employer is liable for one eye only, the second injury Fund making up the difference to the worker for total loss of sight.

I think that these four statements are what the Subsequent Injury Act is doing for the workingman who has been disabled, or parially injured.

CHAIRMAN HANMAN: Thank you, DR. LEGGE.

"What is the attitude of management on prepaid health insurance?" MR. BAHRS:

MR. GEORGE O. BAHRS: I believe the segment of management that has done the most thinking on this subject is in favor of voluntary prepaid health insurance. Speaking for the San Francisco Employers Council, which I represent, our Board of Governors has endorsed the principle of voluntary prepaid health insurance and we have circularized our membership, calling to their attention the various forms of such insurance available today.

It is increasingly apparent that the cost of medical, surgical and hospital care in many cases is getting to be beyond the financial resources of low and medium income wage earners' families. Prepaid medical care is designed to meet this problem.

How should this prepaid medical care be set up? The

doctors of this state opposed compulsory government controlled and operated health insurance as a step in the direction of socialized medicine. We agree with their position. The doctors of this state say that these needs may best be met by an extension of existing voluntary programs to provide a greater coverage. We agree with this, and we are doing our part to cooperate with them in this respect, as in many instances management has already installed voluntary programs and is contributing to the cost of the operation. We think that one step should be taken at a time, and that a very long step in this direction would be to provide coverage for the wage earner class. The indigent or those without any means of income are special problems and should be treated separately.

From our studies, we have come to certain conclusions: first, just as the doctors favor the free practice of medicine, so do we favor free enterprise in the field of health insurance. We oppose a monopoly by government or any other source. We are in favor of private enterprise. We believe that competition would be beneficial to all. As an illustration, I would like to cite the case of workmen's compensation. From the time that workmen's compensation started, we have had a State Fund operated by the state. Private insurance companies are also licensed and permitted to carry workmen's compensation insurance. From the time that workmen's compensation insurance became compulsory in this state, the percentage of insurance carried by the State Fund has steadily diminished year after year, until the last study which we made showed the State Fund carrying slightly in excess of 14% of the entire load.

Just as competition has stimulated safety programs in the case of workmen's compensation insurance in order to reduce the cost of coverage for the competing insurance company, so do we believe that a competitive system in health insurance would be a strong inducement to preventive medicine.

Secondly, we believe that an important share of the cost of health insurance should be borne by the employee. The employee receives the benefits and there is no reason why he should not pay his share of the cost; there is no reason why the entire cost of health coverage should be fastened upon the employers any more than the cost of education or police or fire protection. Moreoever, experience has shown if the employee pays toward the cost of health insurance, he places a value upon it and prizes it highly. If he gets it for nothing, he frequently takes it for granted and considers it of little or no value. Therefore, we favor the payment of a substantial share of the cost of health insurance by the employees as a minimum requirement. The cost of health insurance must be held within reasonable limits in order to be successful and generally prevailing on a voluntary basis. On this assumption, as there is just so much money to go around, we feel that this money should be used to care for the prolonged illnesses and the major operations, rather than to care for a multitude of little things; it will not cover both at the present time.

The average wage earner can finance a few days' illness or a few vists to the doctor, but the prolonged illness or major operation presents a serious problem against which this insurance should be set up. Therefore, in order that there should be available money to provide for these major catastrophes, we favor a deduction from the insurance coverage and requiring the employee to bear the initial cost of a share of each illness. For example, the first two or three visits of the doctor. We believe there is substantial support for our theory in that the two great social insurance systems now in effect, namely, workmen's compensation insurance and unemployment insurance, each require that the individual assume an initial portion of that cost by financing himself during an initial waiting period. Otherwise, in our opinion, the cost would be prohibitive.

These, in general, are the lines on which we are thinking. We believe there are many problems ahead, but we want you to know that management will cooperate and is cooperating with the doctors in their efforts to keep health insurance on a voluntary, competitive basis.

CHAIRMAN HANMAN: Thank you, MR. BAHRS.

"What are the standards for analyzing accidents?" MR. ENNIS:

MR. GEORGE S. ENNIS: Until recently the worker seemed to be concerned about two things, (1) wages, and (2) hours of work. Recently, a new factor has challenged the interest of the worker, particularly in the mining and lumbering industries. This factor is his personal safety. This new attitude has been a valuable addition to accident prevention, because in the past it was a challenge to try to interest and obtain the cooperation of the worker in the accident prevention program which has been designed principally for his benefit.

Accident occurrence is subject to control. Personal injury is preventable. This may sound like double talk, but let me illustrate by citing a common occurrence, the accident to the worker handling material, dropping material on his foot. The accident occurrence most difficult to control is the "dropsy habit," as we call it, but it is definitely possible to prevent the injury through the use of the protective safety shoes.

Accident prevention can only become effective, or a well-planned program can only be developed, if we have accident facts. The only way we can obtain accident facts is to encourage industry, both large and small, to standardize on some method of recording the factors in accident occurrence. These standards are available. They have been set up by the American Standards Association and are an American recommended practice for compiling industrial accident causes.

The standards themselves are rather simple. They are in two parts. Part 1 deals with the selection of accident factors, and Part 2 with the detailed classification of accident factors. I might best quote from the Code itself:

"The accident and its causal factors: The purpose of this classification is to provide a statistical method of recording the essential facts of accident occurrence, from which can be compiled essential information for accident prevention. Provision is made for the recording of only such factors as are commonly recognized by safety engineers as being most closely related to the accident, and as being of most value in practical prevention work.

"The classification is not intended to deal with obscure causative factors or factors too far removed in the accident sequence to be definitely determined. Each essential point of information about an accident is referred to in the classification as an accident factor. These accident factors are grouped in six major classifications:

"(1) *The Agency;* the agency is the object or substance which is most closely associated with the injury, and which in general could have been properly guarded or corrected;

"(2) *The Agency Part;* the agency part is the particular part of the selected agency which is most closely associated with the injury, and which in general could have been properly guarded or corrected;

"(3) *The Unsafe Mechanical or Physical Condition;* the unsafe mechanical or physical condition is the condition of the selected agency which could have been guarded or corrected;

"(4) *The Accident Type;* the accident type is the manner of contact of the injured person with an object or substance; or the exposure, or the movement of the injured person which resulted in the injury;

"(5) *The Unsafe Act;* the unsafe act is that violation of a commonly-accepted safe procedure which resulted in the selected accident type;

"(6) *The Unsafe Personal Factor;* the unsafe personal factor is the mental or bodily characteristic which permitted or occasioned the selected unsafe act."

We know that there is no one basic factor that is responsible for accidents. We have learned over a period of years and with very limited information, that there are a series of factors involved, a combination of circumstances. If accidents are to be eliminated, all factors must be given consideration.

Since this is a professional meeting and we have the psychiatrists, the psychologists, industrial surgeons and

physicians here, I presume the one factor they would be most interested in, and which would be the most valuable in aiding the safety department, is that of the unsafe personal factor. Under this heading, detailed classification deals with such items as: improper attitude, willful disregard of instructions, violent temper, absent-mindedness, willful intent to injure, nervous, excitable, failure to understand instructions, and improper attitude.

From the physician's standpoint, under this classification come bodily defects, defective eyesight, hearing, muscular weakness, fatigue, existing hernia, existing heart or other organic weakness, intoxication, etc.

If we are to make further progress in accident prevention, we must have more factual information concerning accident factors. The medical department can do a great deal in aiding the safety department to have etsablished this recommended system of accident cause analysis.

CHAIRMAN HANMAN: Thank you, MR. ENNIS.

"What should every medical, personnel and safety department know about the State Bureau of Vocational Rehabilitation?" MR. HICKER:

MR. HARRY B. HICKER: In the large percentage of cases concerning industrial injuries, the industrial surgeon may effectively and successfully accomplish his objective in restoring the injured man to a normal physical condition, and the worker can go back to work and all is well. The worker is happy, and the doctor is happy, the employer is happy, and the insurance company is happy. But occasionally it happens that this result does not follow. Unfortunately there are serious accidents that leave permanent disability; amputations, spinal injuries, loss of sight, or whatever it may be. There was a time when the victims of serious accidents were relegated to the scrap heap, but how far we have come from that period must be very evident to you here who have listened to what the previous speakers said about industrial conditions today.

The one agency that has made this improvement, this condition possible, and the medical profession and everybody, I think, should know about this, is the Bureau of Vocational Rehabilitation. Advances in human engineering made it possible some 26 years ago, and we have been in operation since to aid physicians and personnel men in bringing about the vocational adjustment of the injured person or, for that matter, persons with any type of disability. The profession should know that the Bureau of Vocational Rehabilitation has a staff of experts in vocational adjustment. They know what handicapped persons can do. They have had experience in within-plant adjustment; they have services at their disposal to aid in bringing about the vocational adjustment of disabled persons. If the disabled person needs some vocational counseling, it is provided. If he needs vocational training, that also may be provided, and that comes perhaps especially in the industrial field in a case like this: suppose a man is quite seriously injured and sustains a permanent disability and cannot return to his former job. The first logical thing would be to see whether there is not some other job in that plant with that employer to which he may be adapted. If so, and if he is put on the other job, all is well; but perhaps in spite of the fact he could perform that job physically, he hasn't the skill qualifications for it. That is where the Bureau of Vocational Rehabilitation will come in and provide training for the other type of work. Then it may be that the employer has no spot at all in his plant for this person. In that case the Bureau comes in again and makes a careful vocational diagnosis for the whole situation and may suggest a type of work, and will aid in placement with another employer. So we have found there are very few disabled persons who cannot be successfully adjusted into suitable employment.

This service applies to all types of disability; it applies to all levels and grades of employment.

In technical or commercial operations, semi-professional and even professional occupations in any field of endeavor, and for any type of disability, we can provide this service, this vocational adjustment. Illiterates are placed on routine jobs requiring a low grade of education. That we have been doing so successfully over a period of years has been indicated by what some of the former speakers have said.

The whole thing might be summed up by saying that in our work of vocational adjustment the emphasis is on a purposeful, individualized practice program, leading to a definite employment objective. That is what makes rehabilitation different and makes it as effective as we believe it has been demonstrated to be over a period of 25 years.

CHAIRMAN HANMAN: Thank you, MR. HICKER:

"What preparation has the government made for the employment of the disabled personnel?" DR. QUINN:

DR. FRANCIS B. QUINN: At the beginning of the war, the Personnel Division of the government recognized that in order to produce the materials with which to overwhelm our enemies, it would be necessary to utilize the services of every available worker in the country. That meant tapping all sources of the country's labor pool, including sources which had not been utilized to any great extent in the past, namely, the physically impaired worker.

In order to utilize the services of the physically impaired to the best advantage, it was recognized that they needed better knowledge of the physical demands of jobs and that a more comprehensive staff of job surveyors would be necessary throughout the government industries. In order to obtain and properly use the information, a study was made at the beginning of 100 cases in the Brooklyn Navy Yard, and, from the experience and knowledge obtained from this pilot study, a comprehensive job survey program was initiated which covered practically the entire group of government positions, particularly in the war service and war activity positions. This was carried on across the country, and about 3,500 positions were surveyed. The data obtained from these surveys were collected and put out in the form of what was then called a Manual of Operations, and the information contained in this Manual was put at the disposal of the supervisors and operating officers throughout the country. It was very nice to have the information available in a little book, but we ran up against almost a stone wall of opposition to hiring people who had any physical impairment.

We would go in a shop and say, "I want to see what jobs you have for people who have physical impairment or handicaps," and right away the supervisor would give us the idea that his establishment required a person who had the agility of a ballroom dancer and the physical prowess of an All-American half back. Well, they soon found that it was a case of accepting the physically impaired worker or not getting the work done. So they hired the physically impaired worker and placed him as well as they could. Many of the personnel officials had had no training at all, or very little, but they did the best they could, and the physically impaired worker, when he was properly placed and given an even break with the person who didn't have any physical disability, made good.

The next step of the Federal government in this work was to make a study of what the physically impaired worker had been able to do after about a year and a half of utilizing them in government industry. To do this, 9,000 cases were studied and a selection was made as much at random as possible of the 9,000 cases, 3,000 were physically impaired and 6,000 able-bodied. One physically handicapped worker was compared with two able-bodied workers and matched up as closely as possible as to age, sex, experience, earnings, and ability. The study was made on as impartial a basis as possible, and after the data were obtained, they were sent to the Central Office of the Civil Service Commission in Washington and put on IBM cards. The results showed up favorably so far as the production of the physically impaired workers was concerned.

The government recognized as the war progressed that it wouldn't last forever and that the positions which at that time were not very active should be studied in order to place persons coming back from service in the Armed Forces into the jobs which would become active after the war was over. Naturally, the arsenals and shipyards and aid depots would not be hiring as many people, but there

would be an increase of employment in the public role, private industries, in the Forest Service, and all those activities where employment had been curtailed during the war. The job survey was carried on in these activities and, as it progressed, the technic was changed from the first technic, which was to a great extent merely compiling lists from jobs which could be filled by persons who had this or that disability, to a scientific study of attempting to match physical demands of the jobs with the physical ability of the worker.

To summarize, the government amassed a wealth of information about the positions it had. It created and fostered as far as possible among its personnel officers, a sympathetic and realistic attitude toward the physically impaired worker, and it studied the results obtained from the hiring of the physically impaired workers. It is continuing to study the possibility of utilizing the physically impaired workers in peace-time government pursuits.

CHAIRMAN HANMAN: Thank you, DR. QUINN.

"In what way can the U. S. Employment Service be of help to industry?" MR. HUNTER:

MR. F. W. HUNTER: USES services to industry, in the broad meaning of the term, include all of the activities of the Employment Service which are directed toward employers, such as placement, dissemination of labor market information, assistance on employment problems, industrial services, selective placement, and employment of veterans.

However, for the purpose of this brief presentation, I shall confine myself to an outline of Industrial Services, one of the six points in the USES plan of Service, which is directed toward the more effective employment of the nation's workers. Its services contribute to better the opportunities for employment and to retention on-the-job for all workers including those with employment limitations, through study of employer, community and area problems on employment and through selective application of Occupational Analysis and Industrial Services tailored to meet local needs.

Thus, Industrial Services may be defined as those activities and services which are provided to industry, and other organizations having to do with the application of Occupational Analysis and Industrial Services products and to personalized services when and where available. The objectives of this program go to providing assistance to industry and other groups in those phases of personnel management having to do with the proper selection and assignment, and the development of workers to the point of their greatest worth to their employers and to themselves, to disseminate sound personnel management practices, methods and technics used in identifying and solving employment problems, to extend the application of the Occupational Analysis technics to employers and other groups and to train their personnel in the use of the tools.

As you will readily understand, these are the objectives for the future, supported by every experienced employer and by the various other groups who have already reaped in the Services' benefits.

Now, let me cover another phase of this program, one which some of you may well have experienced. Some years ago, the U. S. Employment Service was obliged to take the lead in attempting to, let us say, "harness" the more or less confusion of employer, worker, placement agency working relationships.

In order to facilitate an effective public employment service operation there must first be an understanding of jobs, and of job orders, so that when an employer in "X" State calls upon the Employment Service for a worker for a specified job, they will both know what is wanted; in fact, if that worker must be located elsewhere, other employment offices will also know what is wanted. In order to facilitate this mutual understanding everywhere —and the foregoing is only one reason—the U. S. Employment Service in 1934 inaugurated an "Occupational Analysis" program, to develop authentic and usable information concerning workers and jobs which could be used everywhere by the Employment Service, by employers, by industry and by government.

Fundamentally, the underlying principle of Occupational Analysis is to determine: what the worker does; how he does it; why he does it; the skill and physical requirements involved. This basic information can be translated and used in a number of ways. For instance:

Analyzing jobs, through job analysis method, job observation, interviewing worker or supervisor, physical demands analysis, and worker characteristics analysis.

Classifying occupations, through Occupational Dictionary classification structure.

Relating jobs, through job families, special aids, Dictionary and Occupational mobility technic.

Describing jobs, through job descriptions, interviewing aids, occupational definitions and special aids.

Analyzing occupational patterns, through job inventory, personnel distribution analysis, industry composition patterns and Occupational mobility technic.

Analyzing workers, through trade tests, aptitude test batteries, physical capacities appraisal, job analysis formula, Occupational Dictionary, interviewing aids and job descriptions.

Classifying workers, through aptitude test batteries, trade tests, interviewing aids, Dictionary, job families, special aids and job descriptions.

These Services and materials can be applied in a number of ways. For instance:

In community planning, such as reconversion, veterans' needs, mass lay-offs, labor market analysis, staffing of plants, economic studies and social studies.

By industrial management, such as training, classification, utilization, job evaluation, labor relations, job engineering, safety engineering, transfer and up-grading.

In counseling, such as vocational guidance, providing occupational reference information, curriculum planning, training of counselors, vocational rehabilitation and vocational education.

In placement, such as application taking, order taking, selection, referral and recruitment.

With this kind of service, assistance, materials, publications and information in the hands of the employer and other groups, and the U. S. Employment Service, the working relationships and operations can be facilitated and a mutual understanding assured.

In order to get accurate and usable information, analysts have to obtain the information right in the plants and offices where the workers are located and the job is being performed. A manual of instructions and forms is provided, and the analyst is trained in their use. To date, there have been over 30,000 separate occupations listed in over 100 major industry groups. In order to do this, over 100,000 separate selected job analyses were made.

For the past 11 years the U. S. Employment Service, through its Division of Occupational Analysis, has been engaged in this activity, which has been supported by some 25,000 industry employers, more than 100,000 workers and several thousand Federal and state government workers. All of the branches of the Armed Services have cooperated in the job studies and in the adaptation and use of the materials as aids in improving occupational adjustment in this and other countries. Employers, large and small, were as eager to perfect this common knowledge of jobs as the Employment Service. Several hundred thousand copies of Occupational Analysis materials have been made available to industry, government, schools and Armed Forces—including about 100,000 Dictionaries, 15,000 Oral Trade Questions Manuals, 70,000 Special Aids Manuals, etc.

This activity must constantly be closely correlated with the practical application of the developed findings at the various operating levels, in order that the research and development phase of the work does not become detached from the needs of the Employment Service, the employers and workers. Continued success of the program requires continuity and stability, and careful long-range planning in order to meet additions, changes and obsolescence. Your support is welcome.

CHAIRMAN HANMAN: Thank you, MR. HUNTER.

"What plan does the Veterans' Administration recommend for the utilization of disabled veterans?" MR. PRICE:

MR. O. W. PRICE: I will outline very briefly a 10-point plan for the utilization of disabled veterans in industry.

This same plan will likewise tie to the utilization of disabled civilians.

1. Designate someone to act as the Veterans' Counselor, preferring a disabled veteran or at least one who is sympathetic toward disabled people.

2. Use modern placement technics, such as skillful interviewing and psychological testing, in order that the disabled veteran will be placed in a job that will not be injurious to his health, and in a job that he likes and one in which he has some aptitude. We should also remember that a disabled person who can perform the duties of a job just as well as a normal individual is not handicapped on that particular job.

3. Make a survey of the plant from the standpoint of physical demands.

4. Make a survey of the plant from the standpoint of working conditions, environmental conditions.

5. Make a check of the machines that can be changed or adapted through changes and controls, or operations, to fit the handicapped individual.

6. Match the job to the man, or match the man to the job.

7. Review before placing a disabled veteran, or any other disabled employee or prospective employee—review the case thoroughly with the company physician with a view to determining the type of work to be performed satisfactorily. In other words, an appraisal of the physical capacities of the employee. Make a record of the physician's recommendations. Also, before placing a disabled employee, review the case with the foreman in order that he will be acquainted with the veteran's or employee's disability, thereby enabling the disabled individual to get off to a good start.

8. Study the veteran's military record with a view of placing him in a job commensurate with his present capability. Many of them have had very fine executive experience and many have had fine technical training. If he is to be an apprentice, then give him credit for the experience he has had in service.

9. Provide appropriate in-service training programs that will enable the disabled employee to overcome his handicap. If he happens to be a disabled veteran in rehabilitation training, the Veterans' Administration will be very glad to step in and will help you or the company to devise an appropriate training program for providing related instructions, pay for the cost of books and supplies, hand tools, and provide complete medical care to the veteran trainee and will assist with his adjustment.

10. Frequent follow-ups should be made of the disabled employee over a period of several months, with a view to determining the progress that has been made in rehabilitation, with a view to determining the quality of work, quantity of work, attitude, and how he is getting along. If adjustment is indicated, then make the adjustment quickly to another job. If there is evidence of instability or nervousness, then talk it over with them from time to time. It doesn't necessarily have to be a nurse, psychiatrist or psychologist, but someone with a sympathetic understanding, but not sentimental. A personal interest in a disabled worker will overcome his feeling of insecurity and will very definitely improve his morale.

In conclusion, let me state that the Veterans' Administration program for the rehabilitation of the disabled veteran seeks to accomplish two principal objectives, namely, rehabilitate and restore the veteran for his own benefit and secondly, to restore him to his community as a useful and self-supporting citizen. The cost of restoring a disabled or handicapped individual is small in comparison to the economic worth of that individual when restored. Therefore, it has a dollar-and-cents value. However, that is not the principal consideration; the principal consideration is that the disabled and handicapped individual is restored for their own benefit, or as you ladies and gentlemen know, an individual who earns his own bread and butter is happier, has more self respect and generally is a better citizen. We don't believe that anyone, let alone a veteran, should be denied the God-given right of earning his own living and being self supporting and useful to himself and to society.

CHAIRMAN HANMAN: Thank you, MR. PRICE.

Ladies and gentlemen, we were allotted two hours' time for this symposium. I am proud to announce that we have completed it in one hour and 59 minutes.

Are there any questions? Does some one wish to speak from the floor?

The Chair recognizes DR. VICTOR H. VOGEL. DR. VOGEL is Chief Surgeon for the Office of Vocational Rehabilitation, Washington, D. C.

DR. VICTOR H. VOGEL: Inasmuch as all present are not from California, I would like to supplement MR. HICKER'S remarks on vocational rehabilitation.

Each state has a combined Federal and state operation, has an Office of Vocational Rehabilitation operating in the state, and in addition to the functions which MR. HICKER had time to mention, two new functions have recently been added. (1) A physical restoration program has been authorized whereby the disabled person, if he could be partly or completely restored to health, might receive this as a service function that was not previously possible. (2) In addition, under the new program, in the rehabilitation process, the judgment and counseling are preceded by a general medical examination, and includes special diagnostic aid in making the vocational diagnosis and vocational plan. The old program recognized only the physically disabled. The new program makes those with mental and emotional disabilities equally eligible for rehabilitation service.

This is not a humanitarian welfare program we are operating with the states. It is a program which is designed to invest a dollar in a man and get it back with dividends, as witnessed by the figures for last year. Approximately, there were 45,000 individuals rehabilitated into employment at a cost of about $7,000,000. However, by expending that $7,000,000, the annual income for these 45,000 people was raised from $7,000,000 to about $77,000,000.

CHAIRMAN HANMAN: Thank you, DR. VOGEL.

The Chair recognizes DR. CLARENCE O. SAPPINGTON. DR. SAPPINGTON, from Chicago, is Editor of INDUSTRIAL MEDICINE.

DR. C. O. SAPPINGTON: In the first place, I think that the Chairman of the Symposium should be congratulated in selecting this galaxy of intelligence and giving us such an extremely fine panel.

Someone mentioned the reliability of the physical examination. For many years, we have been thinking about that very subject, and there are perhaps a number of questions that might be asked. I don't ask the questions and expect to get the answers, but merely as a stimulant to further thought on the matter. Does the physical examination record as used by industry give an adequate picture of the individual which it represents? Can someone who has not made a physical examination take that record and understand exactly what it portrays in terms of a living individual?

Perhaps there has been one thing outstanding in all of this work thus far. At least one of the outstanding things is the concept of assessing a handicapped person in terms of his physical capacities, that is, assessing positively in terms of his ability rather than negatively in terms of his disability.

In the future, as now, in some places it will be recognized that one must provide not only a safe and healthy working place, but also a comfortable place, making for physical comfort as well as mental comfort.

CHAIRMAN HANMAN: Thank you, DR. SAPPINGTON.

Is there further discussion from the floor? (No response.)

We wish to thank you, ladies and gentlemen, for your patient interest. You are to be well rewarded, not only in heaven, but right here on earth, as you shall learn now through an announcement of PRESIDENT SCHOFIELD. DR. SCHOFIELD:

DR. RICHARD O. SCHOFIELD: Thank you, Mr. Chairman and members of the Symposium, for an excellent presentation of your subject.

MR. HANMAN mentioned a reward for your patient interest. We would be delighted, ladies and gentlemen, to have you all join us for cocktails at the Palace Hotel immediately following this meeting and to continue with us for our annual banquet. The meeting stands adjourned!

The Utilization of Aluminum

—In the Prevention and Treatment of Silicosis—

J. W. G. HANNON, M.D.,
Washington, Pennsylvania

ALUMINUM therapy in silicosis is based upon the hypothesis of Gye and Purdey that the chemical action rather than the physical irritation produced by silica is the cause of silcosis. This work is supported by Gardner and Cummings who showed that the tissue reaction to silica definitely is related to the size of the particle.

Based upon the chemical theory of silicosis, experimental work has demonstrated that adsorption of certain substance to the surface of the silica particle prevents its usual toxic action. The first substance found to have this action was a colloidal solution of "Iron Hydroxide." Later it was found that metallic aluminum, or a specially prepared and stable amorphous hydrated alumina, had a similar and better action when intimately mixed with the silica in the lung.

Application of these principles in an extended series of animal experiments in Canada and the United States has demonstrated conclusively that (1) Aluminum will prevent silicosis; (2) That progression of immature lesions can be arrested; (3) There is resolution of the early inflammatory response to silica; and (4) There is no apparent effect on the fibrotic nodule.

Clinical application of the knowledge gained from animal experiments involves the recognition of the many variables found in industrial plants, where concentrations of silica dust in the atmospheric air are capable of producing disease.

These variables consist primarily in the following: (1) The amount of dust in the atmospheric air of the working area, the percentage of silica in the atmospheric dust, the particle size of the silica, the admixtures of other dusts that may accelerate or inhibit the action of the silica; (2) The peculiarities of the individual workman, whether they be anatomic or functional may predispose to increased retention of silica dust in the lungs.

Appreciating these factors, we can then consider the pathological lesions that are produced by silicosis and result in disability.

One of the first lesions produced by silica is damage to the epithelium of the terminal bronchiole, a condition referred to in South Africa as "Dry Bronchiolitis." This lesion impairs the mechanism of dust elimination and results in a greater retention of silica in the lungs. Bronchiolitis predisposes to broncho-spasm, a condition that traps air in the alveoli of the lungs. This results in an increase of the residual air and is responsible for the symptom, "tightness in the chest."

The next lesion is thickening of the alveolar walls. This abnormal change is more pronounced in the rapid forms of silicosis and results in a decreased elasticity of the lungs. The thickening of the walls interferes with the normal oxygen, carbon dioxide exchange and is one of the causes of the symptom, "shortness of breath."

Presented at the Meeting of the WESTERN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, San Francisco, June 30, 1946.

The stages in the development of the silicotic nodule must be considered. The first stage is that of the inert or foreign body reaction. Here we have alien material in the cell but without toxic manifestations. As the silica enters into chemical reaction with the tissue fluids, the monocyte that has engulfed the silica begins to swell, as seen in stage two. The chemical action progresses, as does the damage to the cells, and stage three is produced. In this stage the cells are elongated, their staining characteristics are impaired, and they tend to group in concentric patterns. Stage four is the typical so-called fibrotic nodule that casts the shadow on the x-ray film. Progression in silicosis is due to the maturing of nodules. It is doubtful if the nodules produce any disability other than by reducing pulmonary capacity by their physical presence. Other pathological lesions are a generalized increase in the reticulum which decreases the elasticity of the lung together with emphyema and the extensive chronic inflammation that usually is present.

The prevention of silicosis depends upon the following: (1) Dust Control, which consists essentially in minimizing the amount of dust produced and exhausting the dust which is produced to the practical economic minimum. The complete eradication of silica from the working atmosphere, so far as that is practical, is the best treatment for silicosis; (2) Medical Control, which consists of pre-placement and periodic physical examinations with x-rays of the chest and laboratory work as indicated. All recognized measures for the control of tuberculosis in the plant and community should be used; and (3) The use of aluminum or its compounds should only be employed to take care of that amount of silica dust in the working atmosphere that cannot be removed by a practical economic dust control program.

The aluminum powder used in the prevention and treatment of silicosis is of extreme fineness. Ninety per cent of the particles are below one-half micron, and approximately 30% are below 500 Angstrom units. The powder must be of such size and concentration that it can get into the same cell that contains the silica.

The powder is administered by inhalation as the inactivation of the silica depends upon an intimate contact with its neutralizing agent. Therefore, treatment by mouth or by injection is not effective.

Indications for treatment: workmen with normal chest x-rays, who are exposed to hazardous concentrations of silica dust; those workmen who show precocious tendencies to silicosis; workmen with radiological silicosis and no disabilty; and workmen who have silicosis and give evidence of disability. It is recommended for the time being that workmen suffering from tuberculosis of questionable stability or proved uncalcified tuberculous lesions be withheld from treatment.

Results

TO DATE, several thousand workmen employed in mining, ceramic and foundry industries have been treated prophylactically and therapeutically. There have been no untoward reactions that could be attributed to the inhalation of aluminum. This finding parallels that found in industrial plants in this country and England, where high concentrations of aluminum dust are found in the working atmosphere.

Aluminum therapy was developed chiefly because of its prophylactic properties, and its chief value lies in this phase of the treatment of silicosis. At the present time non-silicotics, who started preventive treatment four years ago, show no evidence of the disease. This short period offers nothing conclusive in the aver-

age exposure, however, as two of the exposures are in experimental plants where high concentrations of silica dust were present.

Therapeutic treatment has been administered to several groups since 1941 and 22 to 96% of those under treatment have had subjective improvement. In plants where respiratory function tests have been carried out prior to treatment and again three to four months after treatment had been discontinued, the men have shown a measurable improvement in their maximum minute ventilation.

In a recent study of 46 ceramic workers suffering from silicosis with moderate to severe disability, 36 or 78% showed an improvement in subjective symptoms after aluminum therapy. The men were studied by physical methods, x-rays of the chest, careful symtomatic histories and lung function tests prior to and three months after treatment had been discontinued. The men were treated three times a week for 40 treatments and with a maximum treatment period of eight minutes. Of the 36 men who noticed a subjective improvement lung function studies made after treatments had been discontinued revealed: 29, or 80% showed 20% or more improvement in their maximum respiratory effort; 21, or 58% showed 30% or more; 15, or 41%, showed 40% or more; 11 or 30%, showed 50% or more; and six, or 16%, showed 75% or more improvement in their maximum respiratory effort. Similar results have been obtained from other studies.

Aluminum therapy, while not a substitute for an engineering and medical control program, is an aid to our present means of controlling silicosis. It is the only additional method at present offering any hope for successfully combatting the ravages of this disease.

Conclusions

ALUMINUM therapy is not a substitute for dust control. The function of aluminum therapy is to take care of that amount of dust that cannot be removed by a practical economic dust control program. The use of aluminum in workmen suffering from silicosis with disability results in an improvement or disappearance of subjective symptoms and a measurable improvement in objective findings in a significant percentage of cases.

The Pneumoconioses

O. A. SANDER, M.D.,
Milwaukee, Wisconsin

THE TERM "pneumoconiosis" was not applied to dust disease of the lungs until the 19th century and then as a pathological diagnosis only. Its original generic meaning was simply "dust added to the lungs," without any implication of fibrosis. However, most of the early pathological reports of pneumoconiosis actually were descriptions of fibrosis caused by associated silicosis or infection, but unrecognized as such. Thus, the two terms, pneumoconiosis and fibrosis, always have been synonymous in most medical minds. It was generally assumed that any dust when inhaled into the lungs in sufficient concentration would cause a fibrous tissue reaction, or fibrosis.

Only relatively recently has it become apparent that many dusts are just as inert in the lungs as by subcutaneous injection, that they cause no more fibrosis in the pulmonary lymphatics than elsewhere in the body. Such dusts may be classed as truly inert.

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It would be well, first of all, to consider briefly a few of the organic dusts whose resulting pathology has been labelled a type of pneumoconiosis. One of these is byssinosis due to cotton fiber exposure, which appears to be an allergic response resulting in typical asthma, without any demonstrable lung pathology. It should, therefore, be removed from the pneumoconiosis category. With the sugar cane fibers resulting in pathological changes which have come to be known as a bagassosis, the precise etiology also is in doubt, although with this condition there is some evidence that a cellular reaction may result from the silica content of the fibers. The condition known as tobaccosis long regarded as a type of pneumoconiosis due to tobacco dust now has been completely disproved as an entity. These theoretical organic pneumoconioses are mentioned only to show how easy it is to be misled in the pneumoconiosis field.

Fungous or mycotic infections come up for consideration rather frequently in the differential diagnosis of the pneumoconioses. Also, they occasionally are occupational in origin and, therefore, are of dual interest to industrial physicians. They may even be thought of as pneumoconioses, since they result from fungous spore dusts being added to the lungs. Actually, the distinction between such infections and a true pneumoconiosis which causes cellular reaction is none too sharply defined. Only a few which sometime resemble silicosis need special mention.

Monilia albicans infection may resemble silicosis by x-ray in some cases, although it has no characteristic x-ray pattern. Because it frequently occurs in the sputum in healthy adults and because it often is a secondary invader in tuberculosis, carcinoma of the lungs, lung abscess and bronchiectasis, the diagnosis of primary pulmonary moniliasis must be made with caution. In one of our cases of rather acute silicosis, monilia were cultured from the sputum repeatedly even after thoroughly rinsing the mouth before obtaining the specimens. We were thereby misled into a diagnosis of primary moniliasis, which was disproved by the postmortem finding of marked silicotic fibrosis, and we were unable to culture monilia from the lungs.

Coccidioidomycosis may resemble silico-tuberculosis and tuberculosis more than straight silicosis because of the cavities found in a small percentage of cases and because of the pneumonic and nodular roentgen appearance in the progressive forms of the disease. It seldom should be confusing in the differential diagnosis, however, because of the frequent characteristic bone lesions.

Aspergillosis is a not too uncommon pulmonary infection and has been found particularly among agricultural workers exposed to rye and wheat dust. A proved case recently was awarded compensation in the state of Illinois in a stockyard worker. The common early x-ray appearance is a bronchopneumonic infiltrate with frequent cavitation, but later the lesions are nodular with dense calcifications. Because of the more recent findings of Palmer that many persons with heavy calcified shadows react to histoplasmin, the early report by Sayers and Meriwether ascribing these calcifications to aspergillus must be re-evaluated. The x-ray pattern labelled "wheatena," a miliary calcification of the lungs so commonly seen in the Middle West grain areas, may well be due to one of these fungi.

Others, such as blastomycosis, actinomycosis, sporotrichosis, and coniosporiosis, may resemble silicosis only rarely and need not be discussed in detail.

The inorganic dusts are the true pneumoconiosis producers, the type of pathology resulting being dependent on the specific properties of the mineral being

inhaled. They now may be sharply divided into those causing little or no cellular reaction and those resulting in fibrous tissue. In the inert group are carbon, iron, calcium, carborundum, barium, tin, and possibly aluminum. On a pathological basis, all of us have some degree of pneumoconiosis due to carbon deposits in the pulmonary lymphatics accumulated after years of city living. The resulting mild anthracosis, not being radiopaque, is not seen by x-ray and, therefore, "healthy lungs" is the x-ray diagnosis.

Where an equal amount of pigmentation is due to iron oxide, however, from excessive welding fume inhalation, or other iron oxide exposure, the radiopaque collections of iron in the pulmonary lymphatics are visualized on chest x-ray films and a diagnosis of pneumoconiosis can be made by x-ray. This is perfectly proper provided the differential diagnosis of siderosis is established and there is no implication of associated fibrosis in the absence of a history of silica exposure. Where there is both free silica exposure in significant amounts in addition to the excessive welding fumes, the resulting lung changes may be most difficult to evaluate. A differential diagnosis between pure siderosis and silicosis or sidero-silicosis can often be made from the x-ray appearance alone, however. With siderosis there is no enlargement of the root glands which usually is found with a nodular silicosis. When the hilum shadows are enlarged in a chest film showing nodulation, silicosis or sidero-silicosis should be suspected if there has been adequate exposure to free silica dust.

Other inert dusts with high atomic weight may result in similar x-ray patterns to those described for the siderosis of welders. Baritosis has been described as due to the inhalation of barium dust in high concentrations. Tin dust has been described as resulting in nodular x-ray patterns, but this has not been verified. The artificial abrasives, on the other hand, such as carborundum and aluminum oxide, do not result in lung changes which can be visualized by x-ray. In grinders with nodular x-ray patterns, it may be assumed that the shadows are not due to collections of the abrasive dust, but probably are caused by iron collections or by silicotic nodulation, or by both. For grinders to develop silicosis today, the work must be rough grinding on castings from which the molding sand had not been adequately removed by sandblasting. Hamlin recently has described grinding operations with which the silica exposures were negligible as compared with the high iron oxide concentrations in the atmosphere. His conclusion was that the nodular x-ray patterns of these grinders were much more likely due to siderosis than to silicosis, all of these cases having been erroneously diagnosed as silicosis in the past.

Other conditions which may sometimes simulate silicosis are silicatosis (talc), which may be a free silica reaction, sarcoidosis, pulmonary vascular engorgement as found in mitral stenosis, polycythemia vera, and chronic passive congestion of the lungs, and occasionally metastatic carcinoma and miliary tuberculosis. Even congenital cystic lung has been called "silicosis" in one of our cases. Sarcoidosis has acquired new interest in recent years because of its discovery in some workers exposed to certain beryllium compounds. The exact nature of this apparent beryllium irritation remains to be determined.

The differential diagnosis from silicosis with all of these conditions presenting similar x-ray appearances is so important because of the need for determining the prognosis in each case when it presents itself to the physician. With industrial workers it is not enough merely to make a general pneumoconiosis diagnosis and let it go at that. The worker wants to know what his chances are of avoiding disabling disease and what should he do or not do to prevent disabling disease. All too often the uninformed physician will offer an unfavorable prognosis with every pneumoconiosis diagnosis, regardless of its precise cause. Too few have realized that the prognosis with the so-called benign pneumoconioses due to inert dust deposits is no more unfavorable than is the mild anthracosis of every city resident. The siderosis of welders and grinders causes no measurable impairment of lung function, no reactivating effect on latent tuberculous foci, and no progression to a degree which may cause functional impairment of the lungs. Many also do not realize that even a nodular silicosis need not carry with it an unfavorable prognosis, provided the condition developed slowly over many years, with exposures to only minimal concentrations of silica dust, and provided there is not a tuberculous focus which may be stimulated to reactivation by the silicosis. We do not remove such uncomplicated silicosis cases from their jobs, but make every effort to reduce their silica intake to prevent further progression of the condition.

When a silicotic individual has an associated tuberculous lesion which may be harboring viable tubercle bacilli, the prognosis always is less favorable. When tubercle bacilli are not being liberated in the bronchial tree, such persons should be kept at work if the infection is not progressing, but every effort must be made to prevent further silica dust inhalation. Frequent periodic observations are necessary to detect spread of the infection as soon as possible after it occurs. Many silico-tuberculosis cases become so chronic that the infection never becomes an open one and death in old age often is due to an entirely unrelated cause. One of our granite cutters with massive silico-tuberculosis recently died at age 74 of a terminal pneumonia.

For the progressive cases of silico-tuberculosis which eventually open and spread tubercle bacilli to all parts of the lung and body, nothing so far has been found to halt this progression. Early in our observations, a number were placed in sanatoria long before they were open cases and some were collapsed. A few cases in which the tuberculosis had become open early and where the silicosis was slight were able to leave the sanatorium with arrested lesions. The majority, however, progressed regardless of what was done. Some of the more advanced combined lesions with marked secondary emphysema have died of right heart failure, undoubtedly due to the long-standing right heart strain. The prognosis always has been poor with a combined lesion which is progressing. Whether or not streptomycin, which has been giving such uniformly good results in stopping the progression of tuberculosis, will also be effective in these progressive silico-tuberculosis cases remains to be seen. Experimental work on this matter is to begin soon and it is hoped that we may eventually be able to offer a more favorable prognosis with these progressive combined lesions.

I SHOULD like to re-emphasize the three fundamental bases without which no diagnosis of silicosis ever should be made. First is the characteristic nodular x-ray pattern; second, history of adequate exposure to free silica dust; third, physical examination, laboratory and physiological studies for determining the functional capacity of the lungs. Too often diagnoses have been based only on one or two of these criteria without considering the third. The one most frequently neglected is the history of adequate exposure

to free silica dust. Too many physicians still make a positive diagnosis when the x-ray reveals a nodular pattern and the history reveals past work in a foundry, at stone cutting, and other dusty trades. They do not attempt to determine the all important details of how much of the dust exposure was to free silica particles in the size ranges which would reach the alveoli, how long such exposure continued, whether or not incapacity for work actually had developed, etc. A doctor is not qualified to evaluate the nature and extent of the past dust exposure in all cases and must depend on industrial hygienists to give him this information. The point I should like to leave is that one cannot jump at the conclusion that he must be dealing with silicosis when he has no more history than a few years of work in a known dusty trade, because, as we all now know, all that is nodular by x-ray is not silicosis.

Health Service for Official Agencies at the State Level

LOUIS W. SPOLYAR, M.D., *Director,*
Division Industrial Hygiene,
Indiana State Board Health

EACH medical director here has on innumerable occasions explained, tried to sell, tried to develop, or in desperation actually designed an industrial medical service to industry knowing and believing that such medical services eventually become the nucleus for all future industrial hygiene programs. It would be presumptious and almost ridiculous on my part to explain to this group why such services should be available to employees and the values that would be *derived* from the execution of such a program. We, probably more than any other group, carry this gospel into the wilderness and preach it consistently. *Why*, then, don't we practice what we *preach?* Why, then, aren't the various medically staffed industrial hygiene units, located in the State Boards of Health and Labor Departments, the plant medical departments for their own official organizations, offering the same services as offered by a plant medical department to employees in that plant? There really is no reason why the official industrial hygiene units staffed by medical men should not: have pre-employment and periodic examinations; minor first aid; help in job placement through medical examinations; do or have done routine laboratory and x-ray work; and undertake to control all occupational diseases that may actually or potentially occur within their organization—if we believe in what we say.

Until the latter part of 1945, we merrily went on our way offering industry the big four of the routine industrial hygiene service, namely: medical, engineering, nursing, and chemical services. Suddenly and quite rudely we were awakened from this somewhat self-satisfied and "guess-we-are-doing-as-well-as-we-can" type of dream by having no less than three physicians ask me, *how our own* medical department was set up. This at a time when I was trying to help them establish a medical service, devise forms, records, etc. That's a good $64 question—if you like $64 questions. What would be your answer? Well, mine was the same: "Doctor, we don't have a medical department." While your face approaches the color of a fancy newly-painted red Indiana barn, you casually note a nondescript facial expression on the interrogator as he very quietly says, "Oh, I see." Really now, why don't we have such services? Arguments by this group against such services would be merely alibis, for no such arguments exist. Following this embarrassing episode we started a health service for our own employees.

In carrying out the theme of this conference by getting down to brass tacks on administrative headaches associated with the administration of an official program, I'd like to discuss with you how the program was developed in Indiana.

Development of Program

FIRST it is necessary to organize on paper the entire program. On paper you must explain why, what, where, when, how and what benefits will be derived. Physical examination forms must be designed, minimum physical requirements set up, and policies formulated. Following the formulation of such a plan, it is explained to the Health Commissioner, to the Board of Health, and lastly to the State Medical Society. Endorsement by these three permits one to go to the next phase, namely, an educational program for the employees. Through discussions at meetings for all employees we tried to acquaint them with all the facts. Likewise stories in our weekly mimeographed paper of the Board of Health, the "Bill O' Health," further explained what we wanted to do. We explained that the health services would include the following:

1. Pre-placement and follow-up examinations. These include physical examinations, laboratory work (C.B.C., sedimentation rate, sero-diagnostic test, and urine analysis, plus any other tests indicated) and x-ray of the chest.

2. Pre-placement medical report to personnel director showing candidate to be A, B, or C. A signifies applicant is suitable for immediate employment, B, applicant should be deferred for treatment of an acute disease and C, applicant is non-acceptable for medical reasons.

3. Care of minor injuries will be provided. All serious occupational injuries are referred to specialists and we pay the bill. All non-occupational injuries and illnesses are to be referred to family physician.

4. Record keeping and analysis. All records to be kept in the medical department in locked files. Routine absentee studies to be made on a monthly basis. Records will include absentee studies by department.

These points were carefully explained but even so there were quite a few objections to the program by the women. The chief objection was that any physician in the building would do the examination. One girl summed up the situation by stating, "I don't want the doctors to talk *about me* at the next poker party." We assured her and the others that that would be in violation of medical ethics and further that in actual practice industry does it just that way. "Well," she said, "we know you better than the average industrial physician knows his workers." Thus to eliminate this obstacle we evolved a policy that any one desiring could have the examination done by the family physician, provided that our form was used, was completely filled out, that all the necessary laboratory and x-ray work was done and that the employee paid for the services. That gave all the "shy females" an out, and so far has worked out satisfactorily. This privilege was not extended to new employees.

The cost of the program will run about $5.00 per employee per year. For our 300 employees we set up a budget of $1,500. This has been adequate to meet all needs to date. These figures do not include salary of professional personnel but include expenses for equipment, drugs, hospitalization and consultation fees.

The dispensary case load has been between 1 and 2% of the population per day or roughly six people per day. Average case takes about 15 minutes of dis-

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pensary time. The cases are primarily minor injuries, upper respiratory infections and an occasional serious accident, generally sprained ankle, severe laceration, cut tendon, or fractures.

The actual or potential occupational diseases in a board of health building are rather unusual. The diseases that must be considered are primarily bacterial in origin and include the following: typhoid, extra genital syphilis, brucellosis, (undulant fever), rabies and tuberculosis. This exposure is primarily in the laboratory.

In addition to this the dermatoses appear through contacts with dyes, stains, solvents and etching inks, and through routine office contacts with inks, glues, paper and carbon paper.

In the field tetanus must be considered and all field personnel should be immunized.

Further jobs must be classified as to physical requirements. For example it was discovered that one of the field men was an epileptic. Thus it was necessary to "ground him" and not permit him to drive a car. At a desk he and his fellow workers are perfectly safe.

The advantages of undertaking such a program are numerous. First, there are the usual gains one finds by having a standard medical program, but above these routine gains with which you are familiar, the following appears equally important:

1. The physicians and nurses obtain first hand experience in running a medical department. Based on this experience their consultation service becomes more meaningful. Further, the nurse has a home of her own.

2. The medical department, on an official level, becomes an experimental station for the development, analysis and filing of records. Forms under such a set-up can be readily changed and new methods tried and developed; in a phrase, an experimental workshop.

Then above and beyond these apparent gains you can truthfully and proudly say that you, in your own organization, believe in what you recommend, and that you *practice what you preach.*

Tuberculosis, Silicosis and Compensation

Review by
EDWARD P. HELLER, M.D.

INDUSTRY, TUBERCULOSIS, SILICOSIS AND COMPENSATION—A symposium of useful information on Tuberculosis and the pneumoconioses with particular reference to silicosis and workmen's compensation. Published by the National Tuberculosis Association and copyrighted 1945. LEROY U. GARDNER, M.D., Editor.

THIS 126 page, cloth-bound, gloss paper volume is a gem of real value to those who specialize in industrial medicine and for those whose interest in pulmonary disease is more general. As stated in the preface the idea for the symposium was born at a gathering of the National Tuberculosis Association and the American Trudeau Society Joint Committee on Tuberculosis in Industry. The contributors are all experts in their respective fields, and the publication of such authoritative information between two covers is most timely—especially since four years have elapsed since the publication of the last Saranac symposium on Tuberculosis in Industry by the National Tuberculosis Association.

The book is divided into three sections, as follows:

Part I, Tuberculosis—dealing with the conquest of Tuberculosis in Industry, the attitude of industry toward x-ray examinations of the chest and a chapter describing control of tuberculosis in an industrial group.

Part II, Pneumoconiosis—reviewing the subject of silicosis for the industrial hygienist and medical practitioner. The respiratory hazards of electric arc welding, points in diagnosis and prognosis and the management of the silicotic patient are all well covered. Aluminum therapy in prevention and treatment is ably dealt with.

Part III, Compensation, brings up to date the medical thought in the matter of compensation for partial disability from silicosis, the legal aspects of occupational disease liability, and the physician's position in law as related to occupational diseases.

In a most readable manner W. P. SHEPARD has presented world-wide statistics which emphasize the part war, housing and living standards play in the propogation of tuberculosis, and the value in modern practice of mass radiography for finding cases and isolating them from further contact. He quotes W. A. Doppler as showing that three minutes per employee including dressing time, is sufficient for a well-organized x-ray program. This chapter might well be required reading for skeptics in industry and medicine.

H. E. HILLEBOE and DAVID M. GOULD make an eloquent plea for use of mass x-ray studies "on a grand scale among industrial workers and their families." They point out that 35 mm. and 4 x 5 inch film units are suitable for large plant studies, but that for small plants local facilities using 14 x 17 inch film are more advantageous.

In L. E. HAMLIN'S chapter on Silicosis for the Hygienist and Medical Practioner are some beautiful descriptions of complicated and uncomplicated silicosis, aspergillosis and monilia—all well illustrated.

To go into details concerning the portions of the book devoted to the other topics outlined above should be no part of a review. The names CLARENCE D. SELBY, O. A. SANDER, A. J. LANZA, LEROY GARDNER, and LEOPOLD BRAHDY bespeak only the best in medical opinion as related to the topics assigned to them in this symposium. The one non-medical contributor, B. E. KUECKLE, of Wausaw, Wisconsin, has added luster to this little gem of medical literature by his masterful handling of the subject of financial and humanitarian phases of occupational diseases.

Rocky Mountain Industrial Health Conference

ONE HUNDRED physicians, industrialists and community leaders attended a one day Regional Industrial Health Conference sponsored by the Council on June 4 in Denver. Local arrangements for the meeting were made by the Colorado State Medical Society, of which MR. HARVEY SETHMAN is Executive Secretary. The presiding chairman of the morning program was DR. R. G. HOWLETT, Chairman, Committee on Industrial Health, Colorado State Medical Society. Medical Director J. G. TOWNSEND, Chief, Division of Industrial Hygiene, U. S. Public Health Service, Washington, D. C., presided at the afternoon session. Both presiding officers in introducing their sessions stressed the importance and value of maintaining on a high level the health and productive efficiency of American workers. It was mentioned that relationships these days on the industrial scene are changing rapidly; persons interested in industrial health promotion and health in industry should on return to their community endeavor to bring together the doctor, the community leader and the industrialist for frank discussions of mutual interest. The morning program was devoted to medicine in industry. MR. HOWARD STRONG, Secretary, Health Advisory Council, Chamber of Commerce of the United States, opened with "What Industry Expects of Medicine." DR. VICTOR G. HEISER, Consultant, Committee on Industrial Health, National Association of Manufacturers, read a paper entitled "Practical Benefits of Industrial Health Service." Following came "Coming Events in Industrial Health in the Rocky Mountain Area," by J. J. BLOOMFIELD, Senior Sanitary Engineer and Assistant Chief, Industrial Hygiene Division, U. S. Public Health Service. DR.

A. J. LANZA, Associate Medical Director, Metropolitan Life Insurance Company, New York City, moderated the morning panel discussion, "Better Industrial Health Service in States." The discussion was very lively, and numerous questions were raised from the floor. These had to do with basic matters of medical ethics, standards of industrial medical procedure, employer-employee education, health surveys and questions pertaining to status and relationships. The afternoon session included a series of four short reports: "National Workmen's Compensation Conference Board"—DR. C. M. PETERSON, Secretary, Council on Industrial Health, American Medical Association. "Legislation"—J. W. HOLLOWAY, JR., Director, Bureau of Legal Medicine and Legislation, American Medical Association. "Progress Toward Specialization"—DR. C. M. PETERSON. "Industrial Health, Rural Health and the Program for General Medical Care"—THOMAS A. HENDRICKS, Secretary, Council on Medical Service and Public Relations, American Medical Association. DR. HENRY H. KESSLER, of Newark, New Jersey, moderated the afternoon panel discussion, "Rehabilitation and Re-employment Both of the Veteran and of the Disabled Civilian." Assisting him were DR. DONALD A. COVALT, Medical Director, Office of Medical Rehabilitation, Veterans Administration; DR. ATHA THOMAS, Chairman, Committee on Rehabilitation, Colorado State Medical Society; DR. VICTOR H. VOGEL, Chief Medical Officer, Office of Vocational Rehabilitation. Washington, D. C., and MR. HAROLD C. CORPENING, Regional Representative, Office of Vocational Rehabilitation, Federal Security Agency, Denver. The program was closed with the showing of "Doctor in Industry" (General Motors' Production).

—Council on Industrial Health, in *J.A.M.A.*, August 10, 1946.

Congress on Industrial Health

FOLLOWING is the Schedule of Events at the Seventh Annual Congress on Industrial Health, Copley-Plaza Hotel, Boston, Massachusetts, September 30 through October 2. Monday, September 30: Clinical Toxicological Conference—Lead Poisoning; Surgical Conference—The Foot in Industry; Professional Relations Conference and Dinner. Tuesday, October 1: Opening General Session: Topic—Human Relations in Industry; Elective Seminars: Section A—Industrial Physiology; Section B—Administrative Methods; Section C—Workmen's Compensation; Dinner and Conference on Pan-American Industrial Health. Wednesday, October 2: General Sessions: Atomic Energy—Its Effects in Industry and Medicine; A Positive Health Program for Industry; Dinner and Conference on Health and Welfare Programs in Industry.

DR. PILGRIM

THIS pilgrimage having been halted at Anchorage, California, in the preceding notes, later on there came to Anchorage many former musical associates and friends, including HAROLD and KATE NACHTRIEB, SIDNEY and GLADYS MAAR, MARTIN and RUTH KAUFMAN and WILL CORLETT, and there was much music, of lighter and serious nature, with 'cello, violin, flute and piano, and much bridge and sailing. And after a glorious weekend, Pilgrim returned to San Francisco for the rehearsal of the Campfire Orchestra of the Bohemian Grove, to make preparations for the coming event. And in due time assembling at MAESTRO JAMES TODD'S house and while waiting for the others, more music from *Sibelius* and Toscanini—finally taking off with DR. CHARLES MOORE, and FRANK TRIENA, of San Jose, driving across the Golden Gate bridge into Marin County and through the fine scenery approaching the Bohemian Grove, and what a pleasure again to see big trees and the faces of old-timers, HERBERT STOCKTON, CHARLES HART, HAMILTON HOWELLS, DEAN DONALDSON, BOB ESCAMILLA, HAROLD NACHTRIEB, NORMAN ROTERMUND, and LESLIE SCHIVO, as well as many others. And followed the Campfire Orchestra rehearsal and concert at the Campfire Circle, where came EDWARD ARNOLD and HAIG PATIGAN, the latter presiding and saying: "In Bohemia it is a religion to worship the beautiful." And later on, music at Tunerville, (the orchestra camp) by WENDELL OTEY, the Grove Play composer, DON HUTTON, BOB ESCAMILLA, and others, with champagne by FRED DORWARD. . . . AND then followed days of sunshine, with pinochle and domino games, walks, and swimming, and renewal of friendships with many old associates, including DRS. HARRY ALDERSON, FRANCIS CLOSE, and FRANK GIRARD, and string quartettes and quintettes at Tunerville at any time of day or night, including the playing of one of PILGRIM'S favorites, Franck's Sonatas for violin and piano by MAESTRO TODD and WENDELL OTEY, and much singing of opera and other songs by AUSTIN MOSHER and JOE TISSIER, with DANIEL O'BRIEN repeating his excellent performance of the Atonement of Pan. . . . AND on one of the earlier days of the encampment, taking what is known as the "ride around the rim" in an open bus with HARRY PERRY as conductor, from which the entire 2700 acres of wooded grounds could be seen and the various landmarks located; and at dinner that evening seeing and talking with DR. RAY LYMAN WILBUR and EX-PRESIDENT HERBERT HOOVER, and meeting DRS. ZABRISKIE and JAMES MORGAN, of whom it was said that they had formed a new partnership called "Odds and Ends," the former being a psychiatrist and the latter a urologist. . . . AND meeting JOHN CHARLES THOMAS at dinner and later hearing him sing at the Campfire Circle, and still later, at Camp Tunerville—it being indeed a joy to see him and hear him again. . . . AND as one of the special evenings, there was the Budapest quartette which played chamber music exquisitely, and later on, became our camp guests and played for us there. . . . AND then came LAURITZ MELCHIOR, first to sing for us at Camp Tunerville, and then to rehearse for his concert at the Campfire Circle, and then to sing again after the campfire at Tunerville, meanwhile playing bridge, flanked by a magnum of beer. . . . AND visiting the other camps as "wandering musicians," this being quite a custom at Bohemia, there being many of these sessions. And sitting in on the Low Jinks rehearsal and seeing that both EDWARD ARNOLD and BILL GARGAN had parts, this year the title of the low jinks being "Shangri Lulu," with many a pungent line and music of great melody. . . . AND watching the Grove Play rehearsal, which is a mighty production requiring some several hundred persons on the staff, which including the players, musicians, scenery makers, lighting experts, costumers and makeup personnel, would cost $100,000 if everybody were paid, and after being produced once is never done again. . . . AND playing with the Redwood Club at the Campfire Circle and also subsequently with the saxophone quartette. . . . AND meeting CHARLES WAKEFIELD CADMAN who had appeared at the Campfire Circle the night before, and also hearing the melodious voice of GEORGE APINSOFF at our own camp. . . . AND preparing for the regular Thursday evening concert at the lake with CONDUCTOR CHARLES HART, and later meeting DR. CHAUNCEY LEAKE at dinner, and after the Campfire Circle program, there coming to Tunerville FRED DENKE, who can play more notes on a piano at the same time than a centipede has legs, and JOHN MOLINARI, the accordion impresario, with fine entertainment. . . . AND then for luncheon at Mandalay Camp where again was glad to see GEORGE MCMANUS and JEAN HERSHOLT, and where was also much music of the "sweet" variety. And going on to supper at Piedmont Camp and meeting again AL THORNTON and K. T. KELLER of Chrysler. . . . AND breakfasting with old medical friends, including DRS. CALVIN WALKER, REA ASHLEY, and EDGAR GILCHREEST, and meeting later PRESIDENT DON TRESSIDER of Stanford. . . . AND at another of the regular ceremonial evenings called "The Friday Night," JOHN CHARLES THOMAS presiding and there coming DENNIS DAY to sing fine songs, followed by EDGAR BERGEN (with Charles and Mortimer) and finally, the King's Men and JOE TISSIER, the latter group making a

—*Continued on next page.*

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Erratic Pulse

WITH the editorial finger, as it were, on the continual throbbing of articulate opinion, one wonders. Thus: "It has been estimated by insurance experts that the servicing of the 110 million people who would be covered by the Wagner-Murray-Dingell proposals would require one employee for every 100 persons insured. This is exclusive of the medical service. It would add up, believe it or not, to *over a million bureaucratic employees.*" Veritably, a politicians' dream. . . . A PHYSICIAN who left his industrial affiliation some time ago to engage in private practice remarked lately that the more he sees of "private practice" as it is practiced, the more respect he has for industrial physicians. . . . "HENRY WALLACE says that our salvation is in finding 60 million jobs in five years, but when industry puts 60 million people to work in five months, he maintains that it is simply a dirty capitalistic trick, done by mirrors and inflation". . . . STRANGE that an ailing business usually begins the treatment of its ills by abolishing its medical department. . . . THE FORM of communism which the benighted few seem bent on foisting upon the enlightened many is solely concerned with the pooling of material things. That form never worked, and never will. No one has yet made an ideology of the pooling of the finer intangibles, the fundamentals of decency. That kind of communism could succeed. A reservoir of kindness and tolerance! Even an editor can dream. . . . A FORECASTER of labor developments predicts that health and welfare funds for many kinds of industry will be pushed hard, and these will provide the principal issues in the union negotiations of the foreseeable future. . . . ACCORDING to the counsellor of the Swedish Foreign Office, "an adult industrial worker in Sweden represents an 'accumulated capital' of $5000." In this country he represents a vote, a tax, a union membership, the receiving end of propaganda, and an opportunity for an increasing assortment of government employees to push him around and argue with him that he ought to like it. . . .

The Railway Surgeons

THE Fifty-Seventh-Annual Meeting of the AMERICAN ASSOCIATION OF RAILWAY SURGEONS will be held at Hotel Sherman in Chicago, October 29-30-31, 1946. It will be preceded by the conference of the A. R. A. Medical Section, comprising the railway Chief Surgeons, on October 28, at the same place. This is the first meeting of the AMERICAN ASSOCIATION OF RAILWAY SURGEONS since 1941. Always a gathering of paramount interest on account of its wealth of surgical presentations, it should be of particular value and importance this year—so much that could not be released during the war is now open for discussion. A program of special interest is being prepared. No one who can possibly attend the sessions can afford to miss any of them. This is to urge everyone who is planning to be present to make his hotel reservation NOW. Write the Hotel Sherman *today*. The demands on hotel space in Chicago are such that it is almost impossible to secure accommodations unless the same were previously reserved. So don't wait! Write without delay!

—Continued from preceding page.

tremendous impression. And later on at Hideaway Camp with GENERAL "HOWLING MAD" SMITH of the Marines, who after 41 years of service was "hauling down his flag," and who had just been made a full general. . . . AND hearing EX-PRESIDENT HOOVER'S talk at the lake, in which it seemed that Russia although apparently offering a great deal of peculiar comment, probably was not presenting such a serious problem as it seemed. And later on to Tunerville Camp with special entertainment and a special lunch presided over by ARMAND LAPORTE, who always cooks tagliarini, and this time the corn supplied by HAROLD NACHTRIEB, the great propagator of Lake County. . . . AND preparing for photographs in and about the camp and then to the grill for dinner before the Grove Play, the most important event of the whole occasion, this year the title being "Johnny Appleseed," a story of the pioneers, particularly Johnny who had scattered appleseeds all over the midwest, the book done by DAN TOTHEROH and the music by WENDELL OTEY; with great opportunities for bringing in the spiritual motifs of negroes, Indian dance music, and pioneer tunes, excellently done and set off by unsurpassed lighting effects on the four levels of the outdoor Bohemian Grove stage. And sitting with BILL GARGAN during the play, he exclaiming here and there at the lighting and costume color magnificence. . . . AND preparing to leave the grove immediately, driving back to San Francisco, going back to the grill where saw LEO CARILLO who asked to use my fountain pen in making some inscriptions on the fly-leaf of the Grove Play book of MASON CASE. And all the way back to San Francisco, talking about the wonderful associations and the experiences in the grove and speculating how one could get back to routine things. . . . AND enroute to Chicago aboard the Overland Limited, arriving in time for humidity and hot weather, and also in time for preparation to depart for central Missouri on a munitions problem, of which more in later notes. . . .

NEWS, COMMENT and OPINION

HEALTH is not an inalienable right. It is a privilege. Privileges invariably entail equivalent responsibilities. It is so easy to accept privileges that before long mankind takes them for granted and claims them for inherent rights. Nature grants few rights, preferring to demand that privileges be earned. Health, like freedom and peace, continues only as we exert ourselves wisely to maintain it.

—EDWARD J. STIEGLITZ, M.D., "A Future for Preventive Medicine."

THE new World Health Organization is intended to direct the functions of existing inter-governmental health agencies. It will assume the functions of the League of Nations Health Organization, of l'Office International d'Hygiene Publique, and the epidemiological intelligence functions of the Health Division of the United Nations Relief and Rehabilitation Administration, and will integrate the Pan-American Sanitary Bureau as a regional office.

DYSMENORRHEA remains the enigma of gynecology. Volumes have been written on its management and innumerable therapeutic agents "invented" for its relief but like "ol' man river" dysmenorrhea "jes keeps rollin' along." Any therapeutic remedy, therefore, that will relieve even one-half of the cases, is worthy of serious consideration.

—Note by H. B. M., in *Medical Times*, May, 1946.

IN PITTSBURGH they tell of a long-drawn-out collective bargaining session between a small manufacturer and a local labor organization during the recent steel industry strike. The head of the union delegation kept insisting that the manufacturer was not doing collective bargaining. "Well, if what we are doing right now isn't collective bargaining," demanded the manufacturer, his patience finally exhausted, "just what do you think collective bargaining means?" "Why," declared the union head in all seriousness, "collective bargaining means we *collect*."

—*The Management Review*, May, 1946.

W. C. Conference Committee

SEVEN organizations—American Association of State Compensation Insurance Funds, American Federation of Labor, Association of Casualty and Surety Executives, Congress of Industrial Organizations, Council on Industrial Health of the American Medical Association, International Association of Industrial Accident Boards and Commissions, National Association of Mutual Casualty Companies—have joined in forming a National Conference Committee on Workmen's Compensation. The committee was established to meet the need for a medium through which problems affecting the administration of the workmen's compensation laws could be analyzed and solved in the best interests of individual workers and all others concerned. The U. S. Chamber of Commerce, National Association of Manufacturers, and the Bureau of Standards and Statistics of the U. S. Department of Labor, also have been invited to participate in the activities of the committee.

—*J. American Insurance*, August, 1946.

Job Suit Lost

JUDGE PHILLIP FORMAN has ruled in U. S. district court that it would be "unreasonable" to compel the Jersey Central Power and Light Company to reemploy DR. DANIEL F. FEATHERSTON, 500 Deal Lake Drive, Asbury Park, a former army doctor. In dismissing DR. FEATHERSTON'S suit filed under the Selective Service act for reinstatement as a veteran, JUDGE FORMAN declared that changes in the company's insurance contracts, plus the fact that physician's income from other positions amounts to between $20,000 and $24,000, prompted his decision. "Defendant's circumstances have so changed in its contractual arrangements with a new insurance carrier that it would be unreasonable to compel it to reemploy the plaintiff," JUDGE FORMAN'S written decision declared. "He maintains three other offices, two for other business concerns where he served as a medical examiner and one for general practice. He was also attending surgeon on the staff of two hospitals and was also medical examiner for another concern. His gross income yearly averaged between $20,000 and $24,000," JUDGE FORMAN stated. DR.

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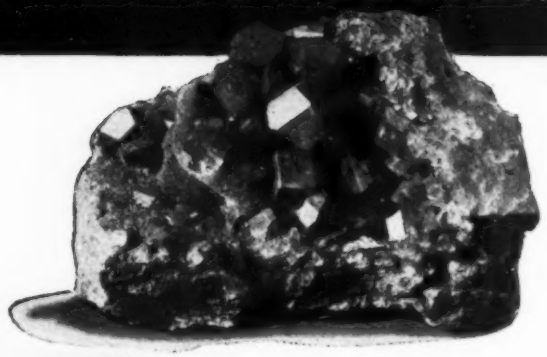

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FEATHERSTON, who was medical director for the company prior to the war, served nearly four years as an army doctor. He had received $250 a month from the Jersey Central Power and Light Company.

—*Asbury Park, New Jersey, Press*, July 26, 1946.

Women Workers

BY 1950 one in every three women over 13 years of age, or more than 16,000,000 women, will be employed in nearly every type of industry in the United States. This mass invasion of the man's world will bring to industry problems concerning the health and efficiency of working women that were not solved during the employment peak of the war years when 18,000,000 women were in industry. "Women appear to be more critical of working conditions than men," says DR. ANNA M. BAETJER, of Johns Hopkins University, in her new book, "Women in Industry." Adequate lunch periods, rest pauses, and sanitary facilities reduce fatigue and add to the happiness and efficiency of women at work as do proper working hours and accident prevention rules. Since women are on the average only 85% as heavy as men and have only about 60% as much physical strength, they have often been excluded from jobs that proper training would have enabled them to perform. The War Manpower Commission and the American Medical Association committee on the health of women in industry aided employers to plan normal training periods for jobs for women during the war. Women have been found to be more satisfactory than men in work that requires accuracy and speed with the hands. One automobile manufacturer reports that women are especially suited for bench work, assembly, inspection, conveyor loading, packing, paint spray, spot welding, light punch press, and riveting.

—*Trenton, New Jersey, Times*, July 31, 1946.

A MEASURE authorizing Federal agencies and departments to establish health programs for the employees has been signed by President Truman. It limits the programs to treatment for on-the-job illness, emergency dental care, general health practices and pre-employment examinations.

—*New York Times*, August 9, 1946.

Every Physician Needs a Hobby

NO ONE ever dies of hard work, per se, it is true, provided it is interspersed with sufficient rest, and provided also that there are frequent intervals when one can play and forget his ordinary problems and cares. Unfortunately, too often physicians forget how to play; they become so engrossed in their work that they even lose the knack of talking about anything else, and then one day they are stricken with coronary disease. The trouble is that vacations are too infrequent. Each of us needs something to turn to at a moment's notice, something in which he finds absorbing interest, and which temporarily shuts out the practice of medicine and every perplexing problem of life. In other words, every hard-working individual, and especially every physician, needs a hobby.

—*Hospital Topics & Buyer*, July, 1946, quoting an Editorial in *Philadelphia Medicine*.

"Get the Ins Out!"

THE bitter fact is that some men outlive their age and history comes upon them while they still live. Cold, vindictive, brutal, history tells its tale and knows no pity. It shows the painted lady the ravages of time and using conscience as an instrument flays the soul for every lie lightly spoken and every deceit easily thrown upon the wings of time. As the slogan is, time marches on, and those who planned to change the world in the ardor of their youth, grow comfortable with power and lazy from the adoration of the multitude. They anger easily and like diabetics, they flush and roar when the perfection of their decisions is questioned. They know that they have failed but lack the ingenuity of youth to turn failure into the flavor of success. They near the end when wiser men sit by the fire, not speaking the dalliance of politics but sipping gallantly the wisdom of the ages, which, when mixed with personal experience, may approximate the truth.

—From an item copyrighted by King Features Syndicate, Inc.

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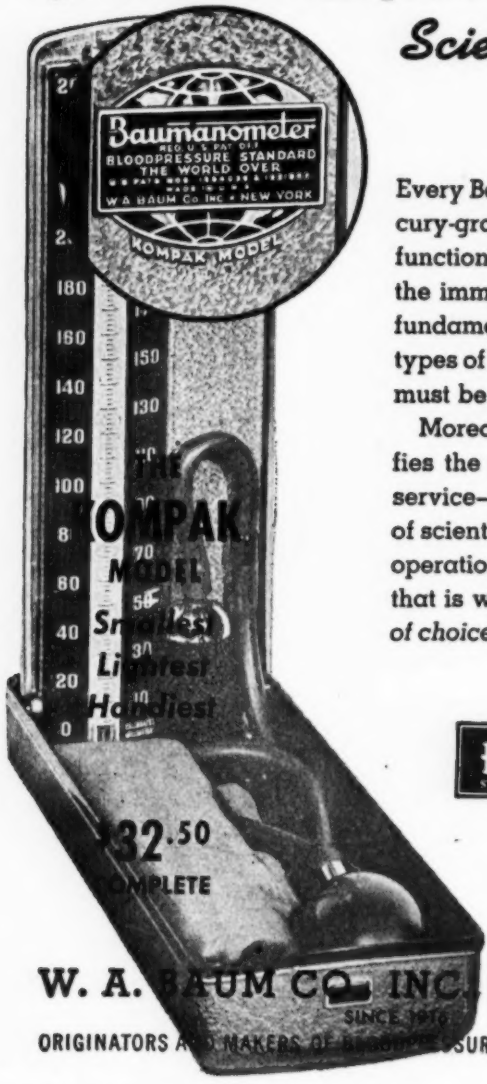

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fore be trained to report promptly a sudden rise in solvent odors, or a smarting of the eyes and nasal passages. These are indications that something has "gone wrong," so that excessive amounts of vapor are escaping. Breathing such amounts of solvent vapors may cause serious illness. Moreover, many organic solvents are flammable, so that a high concentration of vapor in the air may be a dangerous fire hazard. Because organic solvent vapors may be both a health and fire hazard, solvent-using operations should be carefully controlled, so that the concentration of vapor in the atmosphere is kept to a minimum. Operations may be entirely enclosed, so that no vapor escapes; they may be provided with adequate ventilation, to remove vapors from the atmosphere; or, in certain instances, the worker may be equipped with approved respirators or gas masks. It is inadvisable, of course, to rely upon the sense of smell as a proof of safety. Odors may not be noticed by men very accustomed to them; sometimes other odors may mask the solvent vapors; also, an atmosphere in which the solvent odor is only barely perceptible may still be unsafe. For these reasons, a periodic analysis of the workroom air, at the breathing level, by a competent chemist is desirable. For some solvents, there are continuous air sampling and recording devices which will help to ensure constantly safe atmospheres.

—Safety Research Institute.

They Die Hard

DIED in Committee," appeared to be the fate of the Wagner-Murray-Dingell Bill, S. 1606, and the Pepper Bill, S. 1318, as this issue went to press and the 79th Session of the Congress neared its close. Hearings on the W-M-D bill, which began on April 2, were concluded on July 11 with no action by the Senate Committee on Education and Labor except to order the 2,500-page testimony printed. Reports from Washington indicate that the advocates of compulsory health insurance are already preparing a revised version of S. 1606 for presentation to the 80th Congress which will convene in January, 1947.

—*Ohio State Med. J.*, August, 1946.

Aplastic Anemia Trinitrotoluene

ACCORDING to Sievers and his associates the clinical manifestations of serious trinitrotoluene poisoning are of two types: toxic hepatitis and aplastic anemia. Two of three patients who developed aplastic anemia following exposure to trinitrotoluene died. The third patient is having a temporary remission, is making a spontaneous recovery or is responding to therapy. In case 1 there was clinical evidence that toxic hepatitis preceded the onset of aplastic anemia. Necropsy revealed hypoplastic bone marrow and subacute atrophy of the liver. The second patient died shortly after the completion of a sternal puncture. Death was attributed to cerebral embolism. Although the administration of large daily doses of pyridoxine to two of the patients gave equivocal results, further clinical trial of the drug is recommended in aplastic anemia.

—Abs. in *J.A.M.A.*, August 3, 1946, of an article in *Occupational Medicine*, April, 1946.

What Price Security?

IN HIS book, "Social Security—Past Present, and Future," Gerhard Hirschfield estimates that a comprehensive system of compulsory social security in the United States would require each gainfully employed person to work 10 weeks at 40 hours, or 400 hours out of an annual total of 1,500 hours, or more than 25%, just to pay for social security. Who can be secure when government dips into pocketbooks to this extent for just one activity of government, exclusive of the "touch" in other varieties of taxes which a growing bureaucracy demands?

—*Ohio State Med. J.*, April, 1946.

The Key Individual

MENTAL Hygiene in Industry," by William B. Terhune, comes as the fourth in a series of publications by the Silver Mine Foundation for the Treatment of Psychoneuroses, at New Canaan. Dr. Terhune points out that the strain of an all-out war has greatly increased the incidence of nervous disorders among both civilians and soldiers, and fortunately medicine has developed techniques in mental hygiene which can prevent and cure many of these disorders. He emphasizes

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that mental hygiene in industry seeks to consider the degree and quality of intelligence in the worker, his education and educability, and to evaluate the strains imposed by a particular job. It is a proved technique of personal relations founded on a practical philosophy of life. The key individual in industry is the foreman. He is the doctor as far as the daily application of mental hygiene is concerned and representing both management and employees his job is greatly concerned with personal relationships. These are of such a nature that "foremen must learn to be good amateur psychotherapists. They must know how and when to do and say things which help other human beings to be their best selves. It is a job for only a man of outstanding ability."

—Editorial in *Connecticut State Med. J.*, March, 1946.

The Man in the Seat

DID it ever occur to you that our language is full of suggestions that it is a privilege to work sitting down? We respect our Chairman; we Canadians honour the throne; we speak of a Professor's chair, a seat in Parliament, an Archbishop's see, as the crown of a career. The lawyer looks to the judge's bench, and so, too, the Turks spoke of their Divan, and the Hebrews of the Sanhedrin, all in the same sense. Even the word "President" means "the man in the best seat." All this betokens a habit of mind, of respecting the man who does his work sitting down. Most kinds of research, however, are done standing up, or at best perched insecurely upon a laboratory stool. Distrust the man who says he can do research from his desk by issuing orders to his technicians; such a man will never find anything that he does not expect to find; he is not exploring nature, he is exploring his own skull. Nature is a demure and well-mannered lady, and when she is disposed to reveal one of her secrets she lets the veil fall only for a moment, as if by accident, and without announcement in advance; the Scientific Director, checking invoices at his desk, will not notice, and the semi-skilled technician in the laboratory will not understand. Distrust yourselves when you catch yourselves thinking that it is "promotion" to take a good man out of the laboratory and make him a second-rate executive in an office. This mistake—which universities and governments are also too prone to commit—simply wastes the man both for himself and for science. There are good administrators, good researchers, good teachers—all valuable; if we are to make the progress we should, we must try to place and keep each man in his proper niche.

—From an address on "Pharmaceutical Research," by DR. DAVID L. THOMSON, McGill University, at the 39th Annual Meeting, American Pharmaceutical Manufacturers' Association, Chateau Lake Louise, Canada, June 11, 1946.

Aircraft Workers

M. M. ROBINSON: *Med. Annals. of D.C.*, 15, 116-119 (March, 1946): A report of an investigation of dermatitis in a factory making airplane parts. Patch tests on patients and control subjects indicated that the noxious agents were, in order of importance, zinc chromate, anhydrous oil, varsol and carbon tetrachloride. Treatment consisted of stopping exposure and applying bland liniments and ointments.

—*Industrial Hygiene Digest*, July, 1946.

Queer Queries

MANY requests for information are received by the Industrial Hygiene Division, U. S. Public Health Service. Some are routine questions, but occasionally an unusual problem is presented for solution. Recently, two civic-minded men from a small island republic hopefully called on the Division for help with the conduct of the republic's first democratic election. Without offending the voters the men wished to record their appearance at the polls to prevent a repeat call. Fingerprinting seemed to be a dignified method, provided a solution could be found that would not wash off immediately. Nitrate of silver had been suggested by the Bureau of Standards, but nitrate of silver could not be purchased. "Then use potassium permanganate," was the advice of the Dermatoses Section. "Its imprints will leave a harmless but indelible mark on the thumbs of the voters." The fingerprinting succeeded, and the U. S. P. H. S. helped bring fair elections to a sister republic. Another problem, regarding the fumigation of children's shoes, came from a juvenile court worker who was concerned about the spread of athlete's foot when the same shoes were worn by different children. The writer was assured that the shoes were not likely carriers of the fungi. Certain

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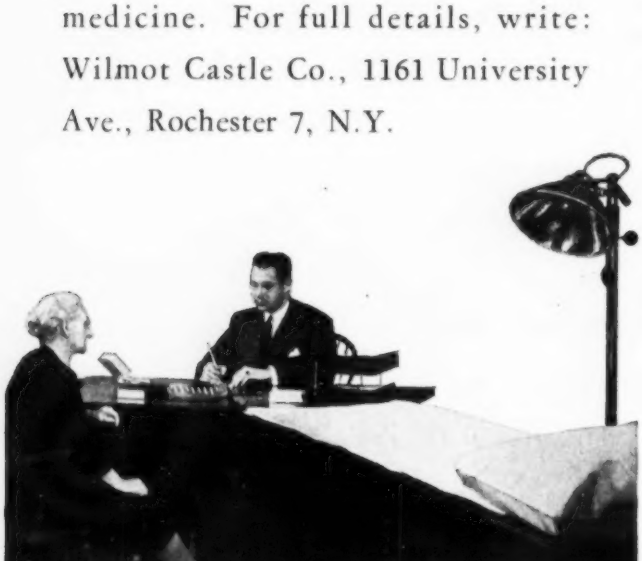

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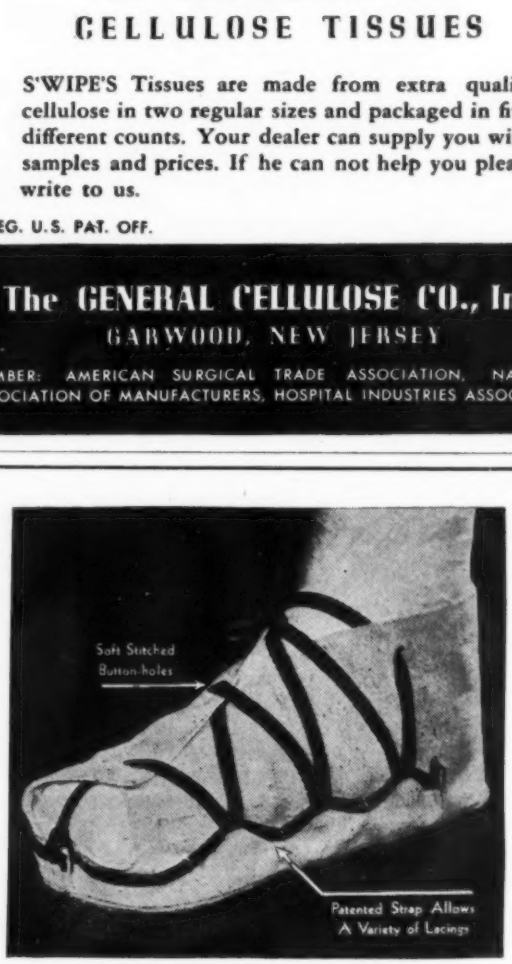

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manufacturers of dental supplies were unable to buy more of a particular resin necessary in the manufacture of dental wax which is used to make imprints of teeth. These men appealed to this Division for suggestions of a substitute. A relatively unknown resin, but one in abundant supply, was recommended. From the West Coast a query came about the safety of using for dust rags a corrosive sublimate impregnated compression gauze which was being sold as surplus goods. The Division replied that the gauze should not be sold for dust rags because of a dermatitis hazard. Questions of wide variety have been received from not only the United States, but many countries, including British Columbia, Monrovia, Sweden, Norway, Mexico, and others asking for both specific advice and general information.

—*Industrial Hygiene Newsletter*, 6:7, 6, July, 1946.

The Future

LET us try to interpret the flickering shadows cast by the future. In these days, perhaps we should ask first whether there is going to be a future. A distinguished physicist assured me that it was nonsense to suppose that atomic warfare could destroy the world; but, before I had time to become unduly elated, he added that it might easily destroy all the living creatures. I do not wish to be too pessimistic. I would rather say that the world has undergone a major operation for the removal—let us hope complete—of the cancer of Fascism. Now the anesthetic of wartime stress and excitement has worn off, and the world lies very weak, very sick, racked with the gas-pains of self-interest and very sorry for itself; with reedy circulation and clammy hands; and though it is fumbling feebly for bell-pushes labelled Security or Internationalism or Communism or what you will, there is no nurse nor intern to be summoned, and its recovery must depend upon its own residual vitality and such scraps of sense as it may be able to display.

—From an address on "Pharmaceutical Research: The Past and the Future," by DAVID L. THOMSON, Professor of Biochemistry and Dean of the Faculty of Graduate Studies and Research, McGill University, at the 39th annual meeting of the American Pharmaceutical Manufacturers' Association, Chateau Lake Louise, Canada, June 11, 1946.

Amino Acids

THE general interest in amino acids can be attributed to the fundamental fact that the amino acids are the constituents of protein. Biochemical research during the last two decades has shown that the proteins are most intimately associated with living processes; hence the amino acids seem certainly destined to have increasing pharmaceutical importance. Individual amino acids may be prepared from proteins, or by synthesis. Each type of preparation has its particular advantages. Amino acid molecules can exist in left-handed and right-handed forms, like gloves. Synthetic products contain equal mixtures of the two forms. Amino acids in nature are almost exclusively left-handed. For many purposes only the left-handed form is of value. In these cases the isolated substance often has an economic advantage over the synthetic one. The breeding of crops to improve their contents of individual amino acids has already begun, in Iowa and elsewhere. Isolation of amino acids from natural materials is also the method of choice when the product sought is a mixture of amino acids suitable as a nutritional substitute for protein. It will probably be some time before a synthetic mixture can hope to compete economically with protein hydrolyzates for this purpose. This utility is incidentally the single development which has so far received the most attention in the amino acid field. It has recently been shown that the addition of appropriate factors (strepogenin) may render an amino acid mixture more nearly equal in nutritional value to a whole protein. Besides their uses in nutritional mixtures, amino acids do have, and promise further, value as individual substances. Cystine,

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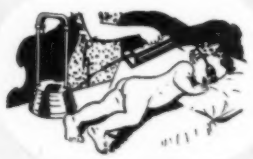

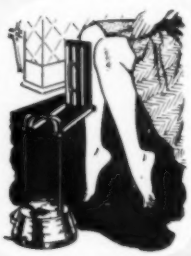

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His preference for wet dressings solution is **Domeboro Tabs** ("widely used in industry", particularly by Parkes[2] at Curtiss Wright for cutting-oil dermatitis)–because it is "a convenient tablet which, when dissolved in water, releases a *lead-free aluminum acetate in appropriate dilution,*" with a substantial percentage of boric acid.

The *crude coal-tar paste* used at New York University, according to Combes, "is manufactured commercially under the name **Daxalan**"—which has been found *superior to distillates, filtrates and pastes containing liquor picis carbonis.*

It must be properly applied for "optimum benefit", and Combes advises thinning with **Domolene** for spreading over a large area—because in his judgment its hydrophilic ointment base "does not materially lessen the therapeutic efficacy of the paste."

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(1) Combes, F. C.: Indus. Med., July, 1944.
(2) Parkes, Morey: Indus. Med., January, 1944.

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used as an intermediate in the synthesis of biotin, and histidine for treating peptic ulcers, are examples. Much work is going on to determine specific amino acid deficiency symptoms. Bacteria also require left-handed amino acids for their growth. It is an interesting fact that the so-called "unnatural" right-handed amino acids are found as a basic structure in the important antibiotics, penicillin and gramicidin, as well as others. In the author's laboratory, it has been found that right-handed amino acids and simple derivatives will alone inhibit bacterial growth. The amino acids are believed to be precursors not only of proteins and antibiotics, but also of vitamins and alkaloids. Chemically and biologically their fundamental realtionships insure an accelerating interest in their various pharmaceutical applications.

—From an address by DR. SIDNEY W. FOX, Assistant Professor of Chemistry, Iowa State College, at the 39th annual meeting of the American Pharmaceutical Manufacturers' Association, Chateau Lake Louise, Canada, June 10, 1946.

Better Attitudes

VETERANS of World War II have better attitudes toward their jobs, the boss and the company than non-veterans, according to a report by Benge Associates, Chicago, based on the findings of morale surveys covering companies throughout the nation. Probably some of this condition can be accounted for by relief from military regimentation. "Veterans are returning with new hopes and new viewpoints, resulting in high, expectant morale." Morale of veterans formerly employed by other companies and of those not employed before the war is higher than that of veterans merely returning to their old jobs. These findings emphasize the importance of alert management taking positive action to minimize the falling of veteran attitudes into the same disillusionment, real or fancied, which affects other employees of long service. This can be done in part, by helping the veteran find a job for which his interests and abilities fit him. Contact with thousands of veterans discloses that they are most anxious to develop themselves and are hungry for practical guidance, such as found in the book "You—Triumphant" recently published by Harpers, which is a guide to self-development in business and industry. "The foundations for successful living are buried deep in daily toil. Management is recognizing that one of its first responsibilities is the cultivation of executive leadership and key personnel talent."

A "Marginal" Nutritional Status

STUDIES of the relation of diet to the mental activity of animals are also quite limited. Three groups of investigators, however, have proved beyond doubt that the administration of adequate amounts of vitamin B complex to the diet of rats significantly increased their ability to learn and to retain their knowledge. Conversely, a deprivation of vitamin B complex leads to marked retardation. These studies have recently been extended by Gantt and Wintrobe, who found that dogs with long established conditioned reflexes involving the differentiation of two tones, completely failed in the differentiation when deprived of vitamin B complex. When feeding of the B complex was resumed, the dogs regained the conditioned reflex. This is an important piece of work, because it indicates a "marginal" nutritional status, the existence of which has long been debated among nutritionists. The animals exhibited no other physical or behavioristic changes in the period of deprivation. Hence, an animal, perfectly normal to all outward appearances, may become stupid merely by virtue of a vitamin deficiency. Although there have been a few observations of a general nature, indicating that the nutritional improvement of school children is accompanied by improvements in scholarship, learning, and retention, the definitive work on the subject was done by Dr. Ruth F. Harrell of Teachers College, Columbia University, investigating the mental response of normal orphanage children to thiamine added to their usual diet. Harrell's experiments were more exquisite, and with fewer variables, than is usual in research within the field of educational psychology. Her results were dramatic.

—From Abbott Laboratories' *What's New*, June, 1946.

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*Plant*_____

Nutrition in War and Peace

FOOD was a major cause in determining the outcome of the recent world war. No informed person will question this or the importance of the nutritive value of the foodstuffs available to the warring nations. The science of nutrition influenced the food production, distribution and consumption policies of the United Kingdom, Canada and the United States to an extent never approached before, in war or in peace. Justification for this may be found in the fact that the general health and nutritional status of the populations of these countries did not suffer during the war. A situation in sharp contrast to that existing during the first World War, which period, according to the Mixed Committee on Nutrition of the League of Nations, "afforded a striking demonstration of the effects of a deterioration in diet, when other factors (housing, sanitation, medical knowledge, etc.) were practically unchanged. The death rate, and especially the death rate from tuberculosis—a still more sensitive index of nutrition conditions—rose in all countries (belligerent and others) where food restrictions were imposed on the population." In spite of this, and in spite of the fact that shortages of protective foods, such as vitamin A fortified margarine, butter, meat and enriched flour and bread, are as great or greater today in many areas of the United States than they were at any time during the war, and in spite of the fact that the added factors of inflation and the end of rationing have caused some of these foods and many others of high nutritional value to be unobtainable in adequate quantities by many families, there is evidence of a decrease in the extent of interest in nutrition in the United States since the end of the war; the U. S. Department of Agriculture has practically discarded the nutrition education programs and industrial nutrition programs of the War Food Administration in favor of agricultural marketing programs; there is little sign of interest in legislation on white flour and bread enrichment in those states not already requiring enrichment; health authorities, fighting for the iodization of all table salt, have suffered a setback; the individual states have shown little inclination to provide funds to permit the continued, effective activity of the Nutrition Committees; there has been a definite dropping off of interest by industrialists in the nutritional health and eating conditions of their employees; activities of organized labor in the fields of nutrition education, research and technical assistance on workers' nutrition problems are now practically non-existent, and so on. There is, of course, a great deal of talk and activity about costs of medical and hospital care, and a number of plans have been promulgated to make such care available to all. However, true, preventive medicine, as exemplified by nutrition, the very basis for health, appears to have lost some of the ground it was gaining so rapidly during the war. This is in part due to the natural reaction of the people to regimentation and interference with one of their most important sources of daily pleasure and satisfaction—food. More immediately it is due in part to the reaction of those small sections of the population that influence government policy in such matters and to those government administrators who do not comprehend the problem and, in any event, enjoy anticipating such reactions. However, these factors are by no means among the major causes. The basic reasons for the difficulties now being encountered by those attempting the general application of the findings of the science of nutrition are; first, that these findings, particularly, perhaps, in relation to the vitamins, have not been sufficiently extensive and definite to convince the majority of either the lay or professional public of the value of the continued daily consumption of optimum amounts of the essential nutrients (the average person is apt to worry about his health only after he himself becomes aware of some impairment, and the relation of nutrition to health is consciously considered by relatively few people in deciding upon their own daily diets); and, second, there has been hardly enough general educational work in nutrition to do

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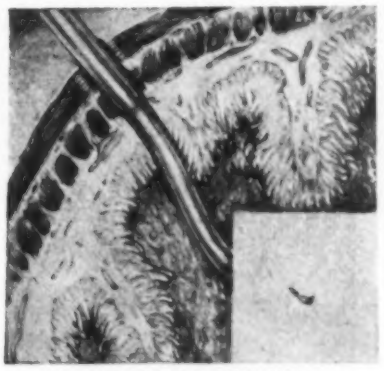

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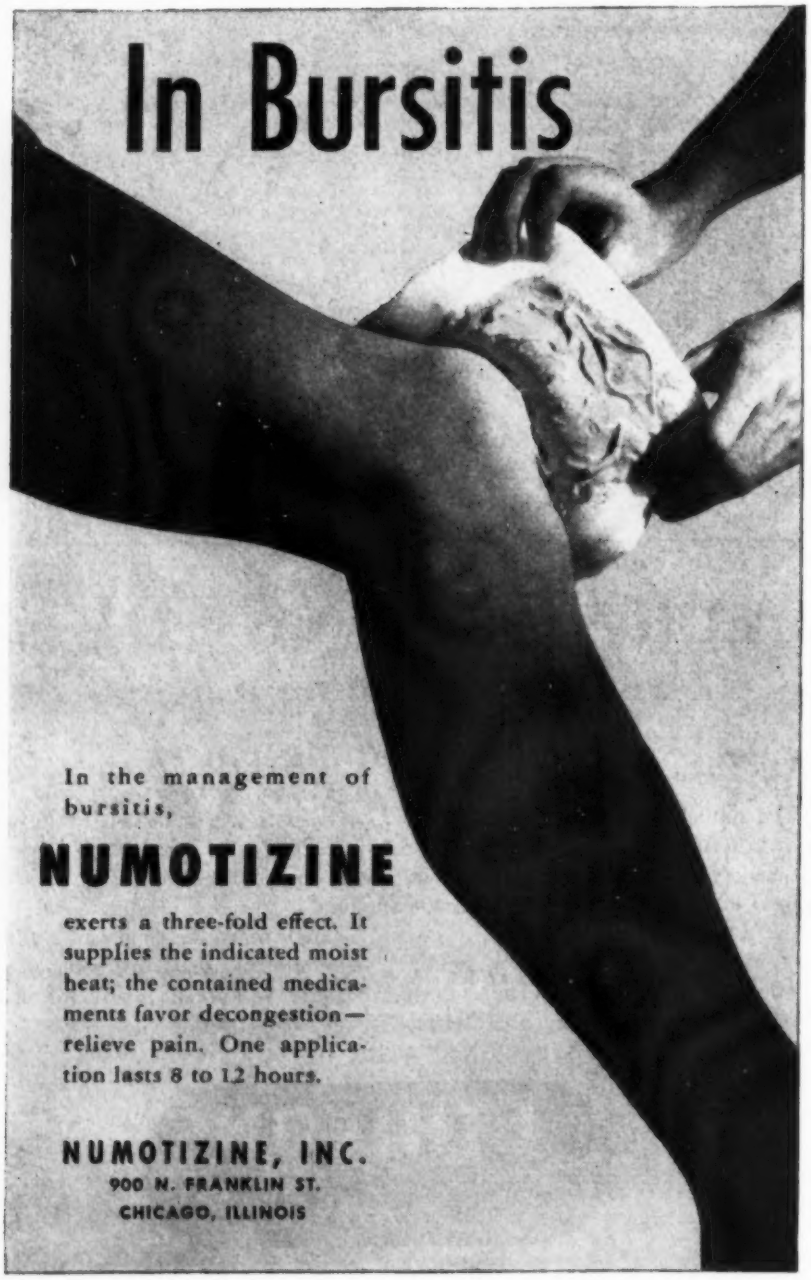
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much more than scratch the surface, and most of the work has been too superficial in nature. The National Vitamin Foundation was established to aid in solving the first of these basic problems by stimulating and aiding with research on the relation of nutrition, particularly as it involves the vitamins, to our health and happiness. The knowledge accumulated through this work should make possible more effective educational programs. I believe that the Foundation is in a position to make most important contributions to the nutritional welfare of the world and to the vitamin and food industries, It deserves the cooperation and support of all firms, organizations and individuals.

—From an address by ROBERT S. GOODHART, M.D., Scientific Director, The National Vitamin Foundation, Inc., at the 39th annual meeting, American Pharmaceutical Manufacturers Association, Chateau Lake Louise, Canada, June 10, 1946.

Health in Industries

HERE are some actual cases from the Foundation's files: During the war we were called to a midwestern plant, where the workers were threatening to walk off the job because of a dust condition. The men were producing an important chemical compound for the Army. The chemical was essential for maintaining pure water supplies in the tropics, but the dust from the operation proved highly irritating to the eyes, nose, and throat. Our investigation showed that the company had installed a ventilation system but that it was improperly designed. Some adjustments promptly improved the system, reducing the dust concentration to reasonable limits, and the men returned to work. Such cases are multiplied many times in the Foundation's experience. During the height of the war, a firm making medical supplies for the Armed Forces inquired about the advisability of blood banks for war workers. The employees were working long hours at high tension and the company wondered if blood donations might not weaken the workers. The Foundation's Medical Committee considered the subject and prepared a valuable report showing conclusively that in normal cases blood donations were in no way harmful to war workers. The Red Cross relayed this report. It was circularized throughout the nation's industries. At one of its conferences the Foundation arranged a panel discussion on "More Manpower Through the Reduction of Absences." This was at a time when manpower was sorely needed and when absenteeism was a national problem. Thousands of copies of this discussion were distributed to war plants, including factories operated by the Army and Navy. This report is still in demand. A high officer of the Veterans Administration wrote the Foundation recently—these are his words: "Industrial Hygiene Foundation has led the procession in stimulating interest in the readjustment of handicapped veterans. The panel discussions on 'Putting the Disabled Veteran Back to Work' have attracted wide attention, not only among the members of your organization, but also among a large number of other associations and industrialists in a position to help further this challenging program. . . ." The author of this statement was referring to a round table discussion on veteran rehabilitation which the Foundation started at its annual meeting at Mellon Institute in 1943. The discussions were continued at the 1944 and 1945 meetings. Arrangements have made Foundation reports available to governmental agencies and private institutions. Sixteen federal agencies, including divisions of the Army and Navy, are among these special subscribers. Foundation publications go to more than half of the states, to medical schools and professional societies, and to many foreign countries including India, Australia, South Africa, Holland, England, and Canada. A plant-to-plant study on "Health Problems of Women in Industry" was conducted by the Foundation during the war. This study showed that women workers are capable of performing about 80% of the jobs ordinarily assigned to men. Through a combination of plant and laboratory research, the Foundation has developed measures for separating large particles of silica dust from the finer dust particles in testing factory air. This procedure permits a more accurate determination of hazards to silicosis. In this "sorting out" process, the chemist deals with silica particles so fine that more than 100 million of them could be piled on the

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head of a pin. During the war years chemists and engineers on the Foundation's staff traveled the equivalent of about five times around the earth in conducting work in plants located in all sections of the country. These specialists on working conditions constitute a kind of police force on industrial poisons. The chemist traces down the offending agent which may menace health. Once the hazard has been identified, the engineer makes the arrest—that is, he devises precautionary measures to keep the hazard under safe control. The industrial physician then determines whether the precautionary measures are proving effective, through his periodic physical examinations of the worker. In recognition of these efforts to help conserve industrial manpower during the war, the Navy Department awarded one of its first Certificates of Achievement to Industrial Hygiene Foundation. Captain Ernest W. Brown, of the Navy Medical Corps, presented the award at Mellon Institute last November, saying: ". . . . Your ability as an organization to advance industrial health has been attained by the excellence of your surveys of occupational hazards, thereby improving working conditions in war plants; by studies of health conditions of women in industry—a new problem; and by your important publications, notably the *Industrial Hygiene Digest*, the only journal of its kind." The *Industrial Hygiene Digest*, to which Captain Brown referred, is one of the Foundation's information services. It contains abstracts of important articles on industrial health. These may deal with medicine, chemistry, engineering, law or insurance. To indicate how much is happening in this field, the *Digest* summarizes more than 100 articles every month. During the past year, it reported some 1,300 items. And those were only the more important developments. For the period of postwar production that is now dawning, Industrial Hygiene Foundation is helping industry tailor new plants, so as to build in better working conditions — proper attention to health on the job; clean air, good lighting, better sanitation—better plants! The benefits of such working conditions are many—a healthful working population, better employer-employee relations, operating economies, and improvements in products. To sum these up, the better the working conditions are, the better the worker, and, in turn, the better is his work.

—JOHN F. MCMAHON, Managing Director, Industrial Hygiene Foundation, in "From the Research Laboratory to the Armed Forces," Mellon Institute.

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Through the influence of its menthol and methyl salicylate, Baume Bengué exerts a well-defined counterirritant action. In arthritis, myositis, bursitis, and arthralgia, it enhances local deep blood supply, aiding in the disposal of metabolites and hastening the reparative processes. Thus Baume Bengué produces relief of pain and a welcome sensation of warmth, materially enhancing the efficacy of systemic measures. Through percutaneous absorption of its methyl salicylate, Baume Bengué provides valuable adjuvant local therapy for the relief of the characteristic discomfort of influenza, pharyngitis, and tonsillitis.

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The Place of the Doctor

IN MY experience, the place of the doctor in the accident prevention program is as follows: First, the methods used for performing most operations in growing and manufacturing sugar are sooner or later discussed in a safety meeting. The doctor learns at first hand what hazards to health or body are encountered on each job, and when he examines a man for a particular job he can evaluate the physical requirements for the job correctly. We don't find a 110-pound man lifting 100-pound bags of sugar. Second, many men and women have not learned the real value of being frank with their doctors. Our informal discussions soon include the doctor as a fellow committeeman, not as the white-coated surgeon the employee infrequently encounters when a trip to the hospital is necessary. Third, the spirit of friendliness that exists at these meetings soon establishes new confidence in the workman and he reports his minor cuts, bruises, and sprains before they become major lost-time accidents. Fourth, when a minor cut or eye accident occurs, a sympathetic bit of advice from the doctor as to protective equipment and devices available, given at the time of treatment, has converted more plantation men to using safety equipment than many of the rules and regulations we publish. And lastly, it is my sincere belief that the enthusiasm the doctor displays for those activities which are included in the safety program is a contribution he can make that excels all others. Enthusiasm for something good is contagious. Once an employee is imbued with the spirit of safety he works with it and for it. And the doctor helps materially to innoculate his fellow workers with the safety spirit through his own personal enthusiasm.

—From "Danger Spots in the Mill," by CHESTER E. FROWE, in *Plantation Health* (Hawaiian Sugar Planters' Association), April, 1946.

PEDICULOSIS

must be relieved *Quickly* among

INDUSTRIAL WORKERS

Early discovery, and immediate and effective control, are important in the treatment of Pediculosis among industrial workers. Unless proper steps are taken, a single case of Pediculosis may lead to infestation of other employees.

Cuprex is a valuable aid to the industrial physician who bears the responsibility of having to discover and check any condition which may impair the efficiency of the workers under his care.

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Return to Serfdom

IN HER column, "My Day," Mrs. Roosevelt gives us something to think about. It is this, "It has been a long fight to put the control of our economic system in the hands of the government, where it can be administered in the interests of the people as a whole." Compare this with the following: "On October 18, 1936, Hitler appointed Goering to control the whole economic life of the country." (From "How Nazi Germany Has Controlled Business," by Hamburger—a book you should read.) Then turn to "The Philosophy of Fascism" by Mario Palmieri. I quote: "We see thus the Fascist State enter the economic field to dictate what shall be from now on the relationship between capital and labor, employer and employee, landowner and farmhand, industrialist and worker." German Naziism and Italian Fascism were "sold" to the people on the promise that they would be good for the people as a whole. The first Nazi order to the Reichstag was "to safeguard the interest of the German people." Hitler was the unselfish "leader." He was to be above party bickering. He was to decide between the clash of opposing interests. He was the friend of the Common Man. Godlike, he was to speak for the whole. Rationing, allocation, priorities, price, profit and wage controls were placed in his hands for the "good of the nation." The people were to have Strength through Joy, the Beauty of Work, Social Security, the "people's car" (volkswagen), Grand Opera, Gymnasiums, Kultur, Vacation trips to Norway's fjords, Christmas trees, Beer, Plenty, and Peace. All this was promised if he had "control of the economic system." Christmas trees were in fact painstakingly classified in three price brackets, depending on length, spread of branches, etc., to guard the German pocketbook. Ceiling prices to football games were fixed to protect the buyer. "A fool and his money are soon parted" just couldn't happen in Deutschland. There were plenty of fools—dummkoepfe—but the government would save fools from their folly. Only postage stamps, Persian rugs, oil paintings and saddle horses—the playthings of the idle rich—were left to the mercies of free bargaining. Hitler summed it up. "There is only one right in this community, the right that results from the observance of duties which are assigned to every individual." This sounds like Henry Wallace's "Bill of Duties," does it not? "The allocation of labor"—the "Soldiers of Work"—was described by Der Feuhrer as the "deliberate direction of German labor in accordance with the material needs of the community." This, too, sounds like administering things "in the interests of the people as a whole" in order to insure the more abundant life. And so, compulsory labor services was clamped down for all youth between 19 and 25 to "work in the public interest." (Mrs. Roosevelt has advocated this.) It was called "a service of honor" to the nation. It was soon extended to all between 17 and 70. But these Nazis were special class, you may say. So I turn back the page of history to the time of the Roman Emperor Diocletian. In 301 A.D. he said it was necessary for rulers, like "watchful parents of the whole human race" to force the people to participate "in the blessings of peace." So he issued his famous edict fixing prices and wages for all important articles and services. His bureaucrats numbered "half the population." Taxation rose to "unprecedented peaks." Torture was used on wives and children to make them reveal the hidden income of husbands and fathers. Carpenters, masons, etc., could be paid only 46 cents a day, plus keep. There were huge public works and a depreciating currency. So oppressive did this "watchful parent of the human race" become that artisans abandoned their trades; peasants gave up their farms to become hired hands; whole villages were deserted to escape taxation, and thousands "fled over the border to seek refuge among the barbarians!" Thus, ac-

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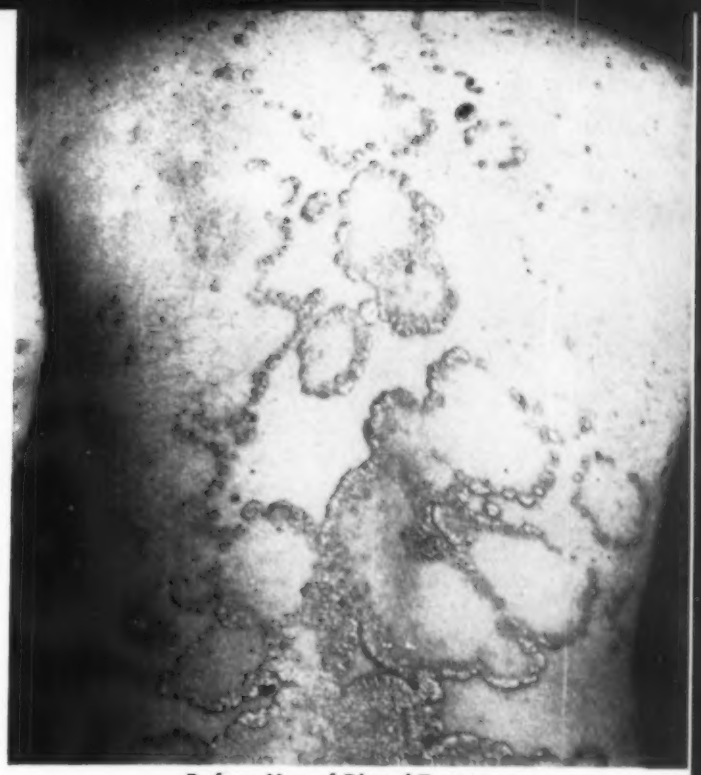

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*Based on average reported values for milk.

cording to Will Durant, in "Caesar and Christ," Rome passed from "freedom to serfdom."

—SAMUEL B. PETTENGILL, ("The Gentleman from Indiana") in *Weekly Bulletin*, Jackson County, Missouri, Med. Soc., June 8, 1946.

Committee on Industrial Health

DURING the past four years the study of occupational medicine has been advancing and extending its influence into all fields of medical practice. It is now recognized that nearly all the medical and surgical specialties as well as certain allied professional groups (engineers, chemists, nutritionists, nurses) are called upon to assume varying degrees of responsibility for the maintenance of healthy workmen employed in a healthful workshop. Most of the surgical specialties have been making important contributions to industrial surgery. To that group have been added many of the medical specialties, such as dermatology, psychiatry, hygiene and gynecology. Industry, organized labor and governmental agencies recognize that one of the important factors in our rehabilitation and reconversion program is a healthy attentive work force. The medical profession as a whole must assume more and more active responsibility for attaining the highest physical, mental and moral standards yet reached in every community of working people. Your committee has been alert to the rapid growth taking place in industrial medical practice and the potential dangers of a too rapid development without guidance by medical men. There is need of a clear understanding of the scope and responsibility that can be and should be borne by the medical fraternity. There is a definite limitation of responsibility that the management of industry can assume. There is an inherent obligation on the individual which should not be misplaced. Each member of your committee has taken an active part at meetings where the problems of industrial health and medical service in industry were under discussion. Through the cooperation of the Council of Industrial Medicine of the American Medical Association we have been helpful in directing and placing a number of medical officers released from the armed forces who wished to enter the field of industrial surgery and occupational medicine. The Industrial Health Section of the *Illinois Medical Journal* has published each month certain abstracts, articles and informative data relating to the field of industrial medicine. The committee wishes to express its appreciation to the various members of the Illinois State Medical Society who have participated with us in meetings, discussions, conferences and publication of papers on special aspects of industrial health.

—JOSEPH H. CHIVERS, M.D., Chairman, F. P. HAMMOND, M.D., HAROLD VONACHEN, M.D., C. O. SAPPINGTON, M.D., MILTON H. KRONENBERG, M.D., R. I. BARICKMAN, M.D., Committee on Industrial Health, Illinois State Medical Society, in *Illinois Med. J.*, July, 1946.

Senator Pepper's Inadvertence

MANY doctors throughout the nation were startled by a widely circulated newspaper report to the effect that a subcommittee of the Committee on Education and Labor of the U. S. Senate had issued a report favoring compulsory sickness insurance. Accompanying the report when issued was a newspaper release of considerable length which indicated that it was the belief of this subcommittee that private medical insurance plans have failed; also that the report represented "substantial approval of President Truman's health message and the Wagner-Murray-Dingell health bill by a bipartisan group of Senators; but neither are specifically endorsed." The report was signed by Senators Pepper, Florida; Aiken, Vermont; Thomas, Utah, and Murray, Montana. It was stated that Senators Taft, Ohio, and Smith, New Jersey, dissented from some of the findings and conclusions of the report and that Senators Hill, Alabama, Tunnell, Delaware, and Morse, Oregon, "have not completed their study of the subject of this report." On July 23 Senator Donnell, Missouri, took Senator Pepper severely to task before the Senate, charging that the subcommittee had no right to issue such a report to the press before it had been submitted to the entire committee. He charged that the press release contained misstatements of fact and that the entire procedure was improper. On July 24 Senator Pepper replied, claiming that he had been trying to get action on his report because his committee was to be discharged on August 1. He admitted

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REFERENCES: 1. Spackman, E.W. et al., Am. J. Med. Sc., 202:68, 1941. 2. Bassler, A., Med. Rec., 153:20, 1941. 3. Rewis, W.B. et al., Ann. Int. Med., 12:1453, 1939. 4. Weissman, S., Clin. Med., 51:3, 1944.

FORMULA: Occy-Crystine is a hypertonic solution made up of the following active ingredients: sodium thiosulfate and magnesium sulfate, to which the sulfates of potassium and calcium have been added in small amounts, contributing to the maintenance of solubility.

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the misstatements of fact in the press release and he admitted that it was not proper to say "bipartisan" when only one member of the minority party had given his assent. He admitted that there "might be some technical deliquencies on the part of himself as chairman" but stated that "it was not intentional," and he apologized in the words, "I am exceedingly sorry that inadvertently such a thing may have occurred." The Senate was so greatly concerned with the extension of price control that the debate was halted. This comment is published to reassure physicians that the Senate Committee of Education and Labor has not acted on the Wagner-Murray-Dingell bill. The release of the report by Senator Pepper together with the press release may well be considered propaganda of the same type as has regularly characterized the actions of Senators Pepper and Murray.

—Editorial, *Journal of the American Medical Association*, August 3, 1946.

Carbon Tetrachloride Poisoning

C. M. THOMPSON: *Am. J. Roentgenol*, 55, 16 (January, 1946): Thompson says that 20 patients with carbon tetrachloride poisoning occurring on a submarine were treated at his naval dispensary. Four of the patients were severely ill, presenting a typical toxic nephrotic syndrome as evidenced by puffiness and swelling of the soft tissues of the face, hands and feet. They had retention of nitrogenous waste products in the blood stream and evidence of real kidney damage. One of the four patients died. The four serious cases are described and roentgenograms of the chest are given. The clinical course of each case and the observations at necropsy in the fatal case were consistent with those described in the literature. Pulmonary changes on the roentgenograms were discovered late in the course of events. The changes varied from consolidation of all five lobes to mild increase in all lung markings. In one case there was a change in the configuration of the cardiac silhouette between examinations. Only the fatal case had symptoms and signs of organic change in the lung fields. In the other three patients the predominating symptoms were gastro-intestinal, followed by renal shutdown. It is interesting to note that the amount of change on the roentgenograms of the chest was directly proportional to the severity of the patients' clinical illness; i.e., the sicker the patient, the greater were the findings on the roentgenogram. Perhaps pulmonary changes on the roentgenograms may

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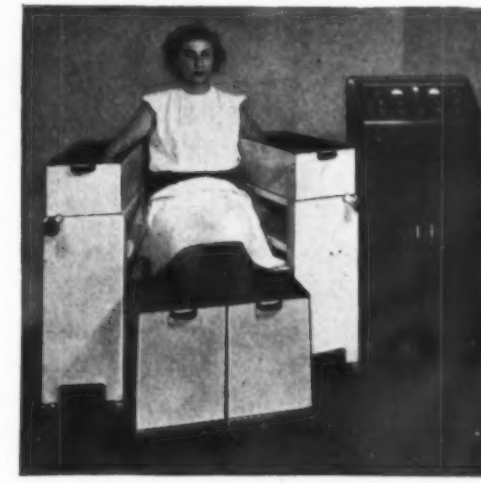
*Kovacs, R.: Electrotherapy and Light Therapy, 1942, p.153.



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be used as criteria in the prognosis and morbidity of cases of carbon tetrachloride poisoning.

—*Industrial Hygiene Digest*, July, 1946.

Industrial Nurse and Plant Doctor

TOO MANY physicians who direct on a full-time or part-time basis the medical activities in industrial plants are refusing to prepare, sign, and administer standing orders for industrial nurses, according to the Committee on Education of the American Industrial Nurses' Association. This situation can not be tolerated. The nurses rightfully charge that without such orders they are often called to perform services for which they are not prepared or which they are not legally entitled to perform. Every Ohio physician who supervises the medical activities of a plant where a nurse is employed should issue written orders to the nurse in individual cases or work out a set of standing orders which will operate in all cases. This is the only way proper professional relations can be maintained and the only way the interests of patient, nurse, and physician can be adequately protected. The Committee on Industrial Health of the Ohio State Medical Association has adopted a set of standing orders for nurses employed in industry. This uniform guide, which can be applied in cases where specific written orders are not issued by the physician, can be used by any physician as the basis for an understanding with the nurse or nurses in the plant or plants under his supervision. It's time to straighten out this situation.

—*Ohio State Med. J.*, July, 1946.

Going Up

A DIRE prediction of doubled prices for printing throughout the country has been issued by the Graphic Arts Association of Washington, based on newest demands of the typographical unions. The local typographical union is now demanding $3.00 per hour (present scale $1.53); four additional paid holidays; three weeks' vacation at double pay; double pay for all overtime; and a number of other concessions. All this adds up to an increase of exactly 136% in the over-all time rate, the employers say. Since the wage cost on periodical printing, which is the bulk of the printing done in Washington, runs to 54% of the total sales price, meeting the typographers' demands would mean a minimum addition of 73% to the price paid by publishers, "assuming all other costs remained constant," the employers' group says. The Washington employers' group says it cannot accede to the unions' demands, but that it will counter with a proposal for "a fair wage increase and a formula to compensate for inflationary costs of living rises." Lest buyers of printing outside the nation's capital assume that the demands of the Columbia Typographical Union are interesting but unimportant to them, the Washington employers point out that whatever happens there is almost certain to be reflected throughout the nation's printing industry. Demands which differ in detail but in general are the same have already been made by the Chicago typographical union, where a scale of $3.02 an hour is sought, and according to the Washington printers, similar demands will shortly be made in other major printing centers. "The printing industry is calling upon its unions to recognize that the ability to pay is based on the ability to produce," the Washington employers say. "Shorter hours, additional vacations with pay, paid holidays and similar demands all tend to reduce the amount of printing produced. We fear that the unions in their unreasoned rush toward greater protection for their members will be contributing to an inevitable bust."

—*Advertising Age.*

Medical Service in Industry

DURING the past several months considerable time has been devoted to the revision of the publication, "Medical Service in Industry and Workmen's Compensation Laws,"

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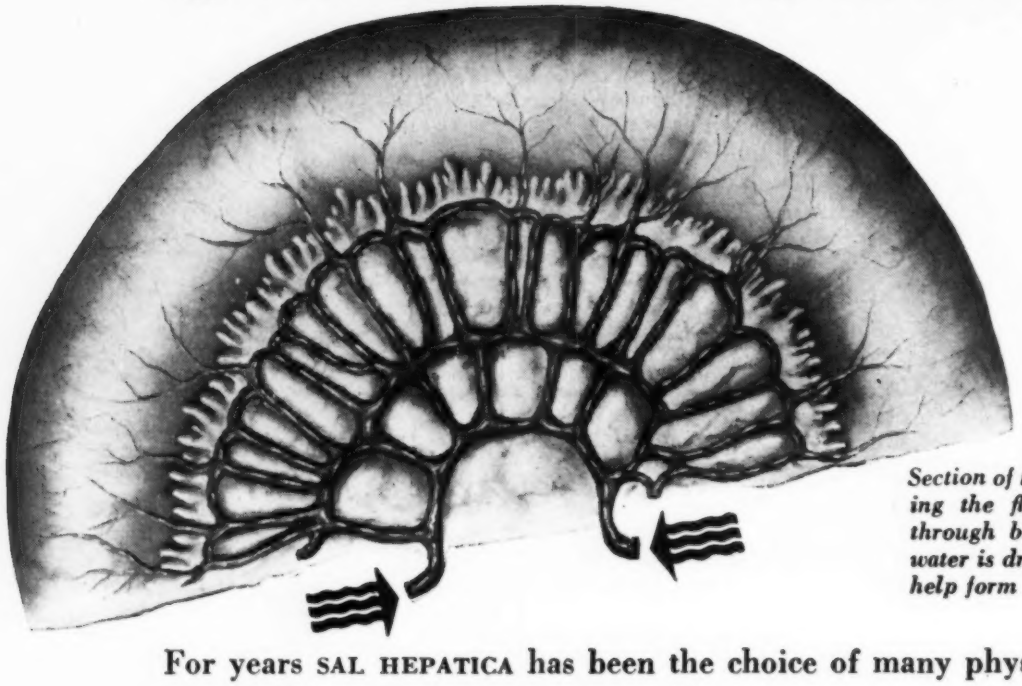

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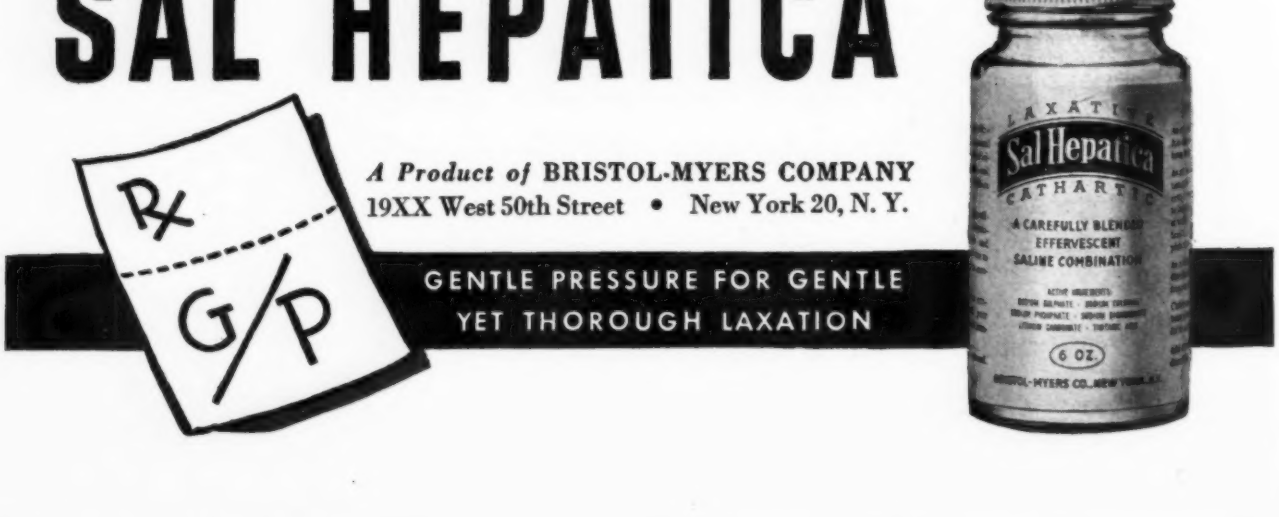

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which was last revised in 1938. Preparation of this material for publication, copies of which will become available in the near future, has been completed. In revising this publication, the fundamental principles originally prescribed for Medical Service in Industry remain essentially unaltered. However, in many instances the subject material concerning the various topics has been treated in greater detail. Distinctly new features are embodied in this volume and include new tables and figures in accordance with more recent information. Considerable space has been given to the portrayal of floor plans of industrial medical departments which are actually in use. Although it is realized that no set of plans can apply specifically to any one group or groups of industries, it is hoped that these exhibits may provide helpful ideas and suggestions for dispensary planning. In connection with industrial dispensaries, there are new tables showing the types of rooms and the number of physicians and registered nurses found in a study of 1,546 dispensaries. In addition, there is a table showing the various items of equipment found in recent surveys of 200 industrial dispensaries. Only during comparatively recent years has there been any attempt to approach a more scientific method of "tailor-fitting" a worker to a job. The subject of job requirements analysis is discussed with the viewpoint of offering suggestions for its practical application to the proper placement of workers. The subject of nutrition is discussed, with suggestions as to how a program of education may be carried out in industry. A separate section has been added, "A Comparative Study of Medical Services in Industry," based on early and more recent surveys, illustrated by tables and accompanied by comments, and a concluding summary concerning the subject. The subject of women in industry is treated in a general way. Industry's call to women and the response which they made was particularly noteworthy during the years of World War II. There is also an added section which contains a detailed outline of the essential requirements for an adequate medical service in industry. In reference to this subject, there also are enumerated items which point out the principal defects most frequently encountered in the survey of industrial medical services. The principal features of the various workmen's compensation laws have been brought up to date as far as possible. This was accomplished by the review of the latest revised editions of workmen's compensation acts of the 47 states having workmen's compensation laws. However, these features may be subject to change in some respects during each state's legislative session. In connection with the subject of rehabilitation, but under a separate heading, is a section entitled "Employment of the Physically Handicapped." Lastly, there is an added section which deals with the present Federal Security Act relative to its essential provisions in reference to Federal old-age and unemployment benefits.

—*Bulletin of the American College of Surgeons*, 31:2, 107, June, 1946.

The Taft-Ball-Smith Bill

THE Wagner-Murray-Dingell bill endorsed by President Truman (on which hearings are now taking place) proposes Federal compulsory sickness insurance. All classes of the population would have to pay for this insurance, in the form of payroll taxes or otherwise, so that a huge sum amounting to from three to five billion dollars a year would pour into Washington. The government would then have to set up a vast administrative organization with thousands of personnel to police the insurance system and to supervise and pay all the doctors in the United States. In effect, health service would be nationalized. A Federal bureau could tell everyone when he could have a doctor, how often the doctor would call, and whether the patient could have a specialist. Every detail of medical

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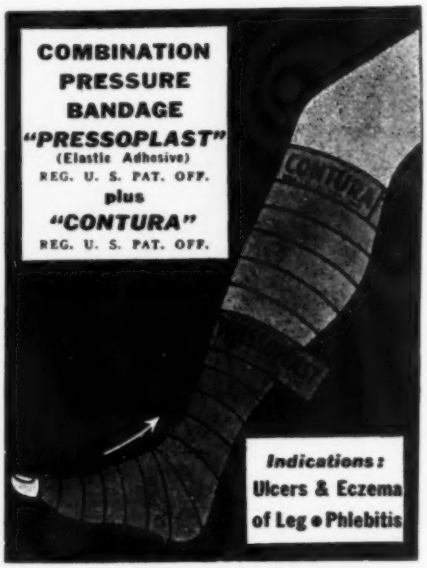

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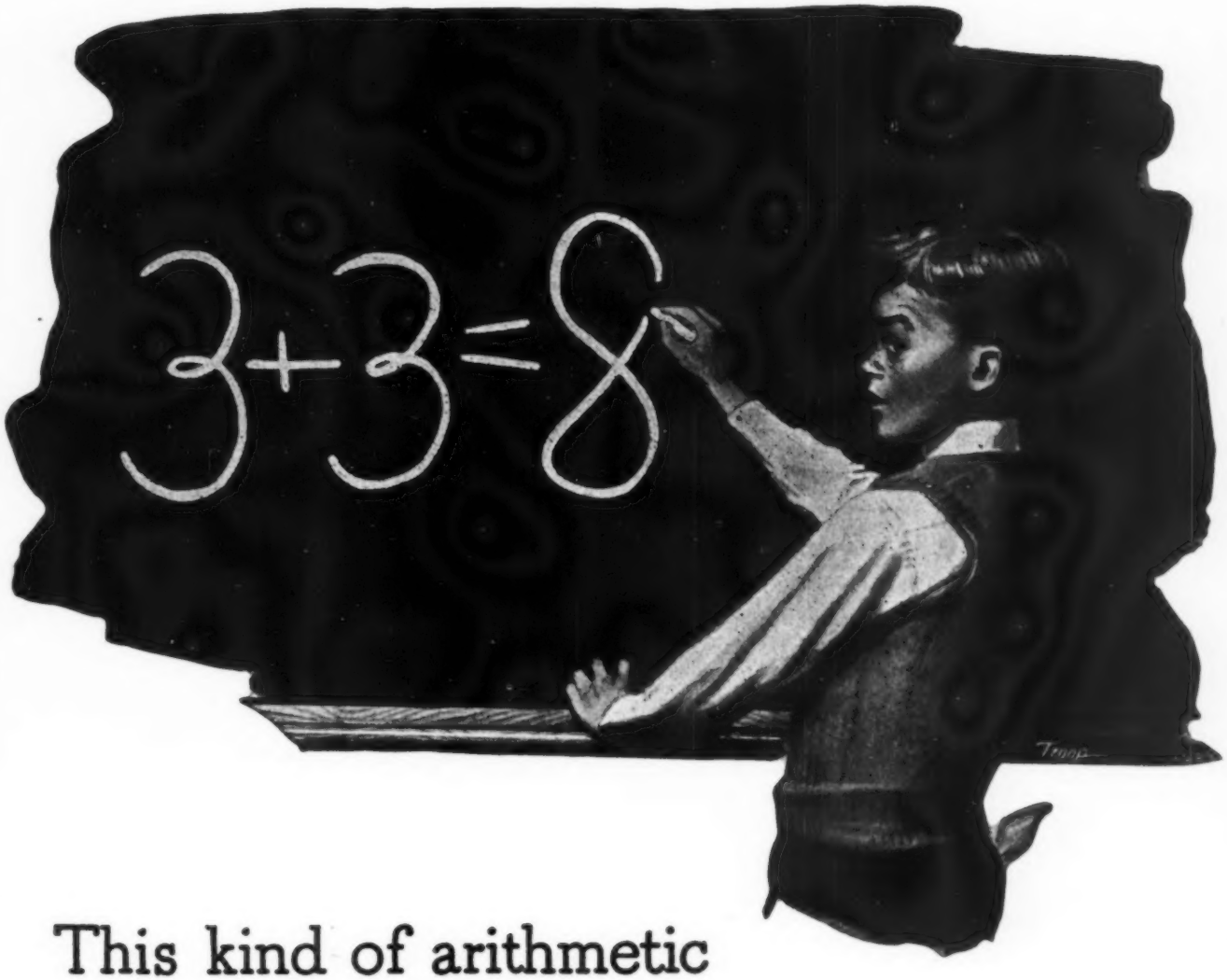
service would be regulated from Washington. OUR proposal follows the theory that the United States already has a comprehensive medical service as good as any in the world, but that there are gaps in that service, particularly in reaching the lower income groups. Our bill encourages and assists every state to fill up these gaps, building upon the existing foundation. Free service will be furnished to those unable to pay. Voluntary health insurance plans will be encouraged so that health insurance may be available to the great numbers of those who desire it, without forcing anyone, patient or doctor, to abandon his present practices. Above all, the bill places the primary responsibility for the health of the people on the states and on local governments where it belongs.

—From an Editorial, "An American Plan," by Senator ROBERT A. TAFT, in *Wisconsin Med. J.*, July, 1946.

The Veteran in Industry

THE veteran may be temporarily unadjusted but this must not be construed into a belief he is unadjustable. Just as the flight surgeon must pick up the first sign of fatigue or mental change in an aviator which, if allowed to continue, might mean a crash that could be avoided—so today we should have a similar observation and study of our returning veterans. In addition to these professional services, proper administration is likewise essential to successful veteran employment. Some employers have been distressed by seeming changes in the attitude of ex-soldiers toward representatives of authority, by apparent disregard of law and order or by manifestations of greed. These cases are in the minority. The average G. I. has not changed much basically, but has broadened. Many complaints from ex-service personnel are justified and all should be investigated. Honest explanations should be given by the employer as to why a thing can or cannot be done. This will satisfy the average thinking individual. Often complaints may be the expression of a sick mind which can only be recognized by a trained physician. On the other hand baseless "gripes" might be merely the result of the ex-GI reverting to the normal status of civilian with the typical American propensity to be vocal about things he does not like. Education is heartily recommended for a return to the American trait of good sportsmanship. Disabled veterans deserve priority in jobs compatible with their capabilities. The handicapped individual can be one of the employer's greatest assets. But safety for the worker and his fellow workers must be considered and in doubtful cases a trial might be warranted. Some may need help in readjusting themselves. Proper placement, training and understanding are essential. The psychoneurotic is not new to the employer, though the term may be. He, too, is employable and, if studied and then properly placed, is no handicap but may even turn out more than his share of work. In employing veterans, physical standards should be guides only. Much leeway should be given to the plant physician and the personnel director to avoid wastage of manpower. Too much emphasis cannot be placed upon proper and complete physical examination and its relationship to appropriate placement. But the human element should not be disregarded. All the help that science has developed may be available; but it is the warm administering of that help that makes it potent. It is the human touch plus the proper knowledge that brings about the right reaction. Special attention and privileges, however, should be kept at a minimum. A sick child, coddled too much, on recovering becomes another spoiled child. Every effort should be made to get the veteran back to work in a normal, healthy and happy environment. Temporary restlessness of the discharged soldier should be considered. He will not fit into a job with little activity. He must be busy to be happy for as a rule he has had a long rest pe-



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riod and does not enjoy idleness even though it may have become something of a habit. The employer should try to make the veteran realize that he is part of the "family" and has just returned home.

—From an address by DR. CHARLES F. SHOOK, Medical Director, Owens-Illinois Glass Company, Toledo, Ohio, and former Colonel, U. S. Army Medical Corps, at the 39th annual meeting of the American Pharmaceutical Manufacturers' Association, Lake Louise, Canada, June 10, 1946.

Transvision Head Structures

A LONG felt need in the dental field is finally being filled by an excellently visualized anatomical atlas of the oral cavity and surrounding structures just made available by the Wernet Dental Mfg. Co., of Jersey City, New Jersey, as a service to the dental profession. Bound in book form and titled, "Transvision Anatomy of Head Structures involved in the Problems of Oral Prosthesis," it presents a series of three-dimensional illustrations in full color. The three-dimensional effect is obtained by printing on transparent pages, similar to cellophane. Right-hand pages reveal the structures of the right side of the head, layer on layer, through the transparencies, from the skin inwards. Left-hand pages reveal the structures of the left side of the head, looking outwards towards the skin. As the *Foreword* states: "Perhaps no section of the human anatomy is more difficult to portray—and therefore to perceive—with true three-dimensional clarity, than the oral cavity, its contents, and surrounding parts. 'Transvision Anatomy' is offered as a contribution toward this objective." There are 11 figures in the book, visualizing: (1) Right side of the head; (2) deep surface of skin, and parotid gland—viewed from within; (3) muscles of face and associated structures; (4) insertion of temporalis and external pterygoid muscles—viewed from within; (5) infratemporal fossa, and buccinator muscle, (6) pterygoid plexus — viewed from within; (7) blood and sensory supply of the jaws; (8) medial surface of the mandible — viewed from within; (9) lateral pharyngeal structures — floor of mouth; (10) midsagittal section of the head; and (11) left lateral nasal wall and palatal muscles — viewed from within. Anatomical structures are keyed to a scientific description accompanying each figure, and each structure is indexed at the back of the book for ready identification. Alfred Feinberg, of Columbia University's College of Physicians and Surgeons, executed the anatomical studies under the direction of Noyes & Sproul, Inc., medical advertising agency of New York City, who designed and produced the book. Copies of "Transvision Anatomy" are now being made available to the dental profession by the Wernet Dental Mfg. Co., at the nominal charge of $1.00 to cover the necessary costs of handling charges.

Early Diagnosis

EARLY diagnosis and treatment of the "diseases of middle and old age" are advocated by MAJOR-GEN. WARREN F. DRAPER, of the U. S. Public Health Service. At a conference of General Motors officials, he added that the industrial physician should diagnose reasons for the employee's "first signs of inefficiency on the job" in an attempt to combat chronic and degenerative diseases.

—*New York Sun*, July 31, 1946.

Mine Safety Code

A PRECEDENT-making uniform safety code for soft-coal mines controlled and operated by the Federal government has been ordered into effect by J. A. Krug, Secretary of the Interior. The new minimum safety code establishes more than 300 separate standards covering "practically every phase of operating conditions and practices in coal mines." These standards apply specifically to such aspects and hazards of mining operations as ventilation and gases, explosives, timbering, rock dust, transportation or haulage, electricity, fires and disasters, and a list of miscellaneous items. Known officially as the "Federal Safety Code for Bituminous and Lignite Mines of the United States," it was drawn up by DR. R. R. SAYERS, director of the Bureau of Mines, with the assistance of Admiral Moreell's staff, and representatives of mine operators and the UMW.

—*New York Times*, July 27, 1946.

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